TANDY LAPTOP COMPUTING JUNE 1989 -VOL. 6, NO. 6

TERRY KEPNER'S

portable 100

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A MONTHLY PUBLICATION (COMBINED JULY/AUGUST ISSUE)

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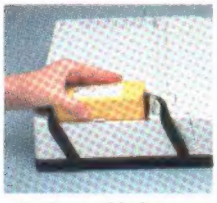

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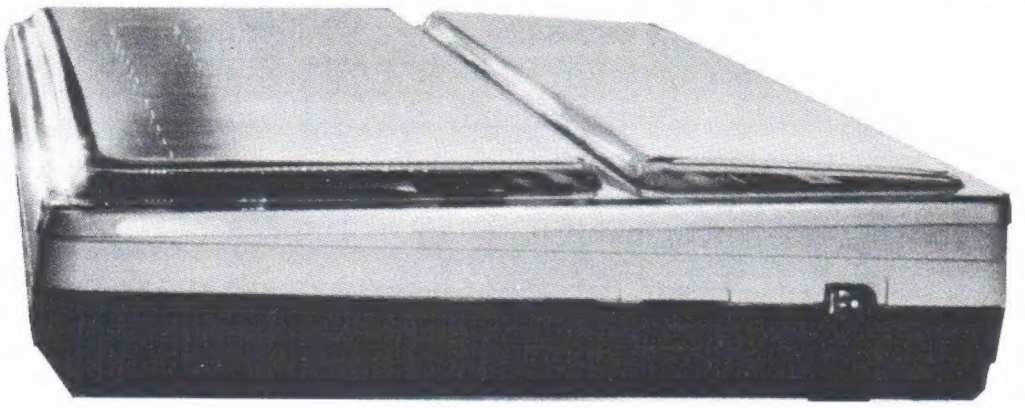

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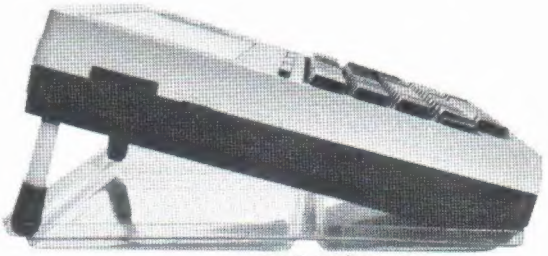

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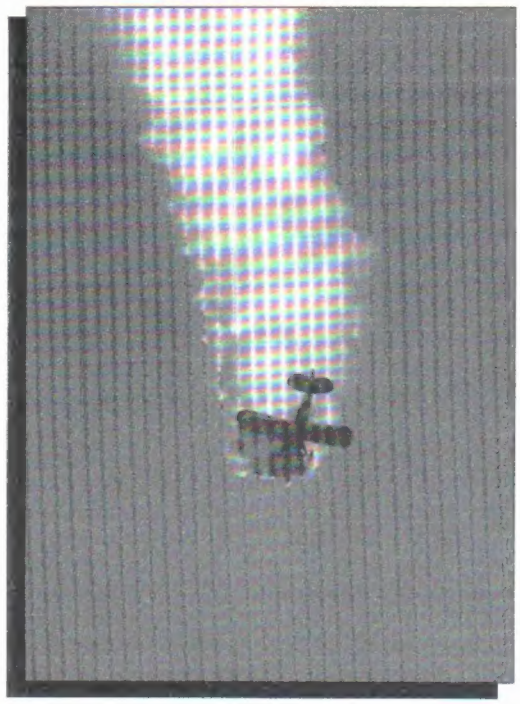
VOL. 6, NO. 6
June 1989

ON THE COVER:
@#$#!%!! happens. When it does, you can recover from disaster, if you're prepared. To prepare for a cold start, see Wilson Van Alst's article, p. 7. Concept by Mike Nugent. Photo by Mark Corliss.



Tandy 102

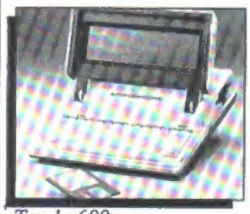
MAYDAY! 7
by Wilson Van Alst
A parachute for your data.

Tandy 200

THE MODEL 100 HITS THE WATER! 12
byLouis Self
A Tandy keeps track of the splashes.

THE APROTEK MINIMODEM-T: SAVE MONEY AND YOUR BATTERY 16
by Terry Kepner
A inexpensive 1200-baud modem for your Tandy 1400 LT.

TRANSFER FILES WITH *TRANS-IT* 18
by George Sherman
Remote control your MS-DOS machine and easily transfer files.



Tandy 600

Tandy 1400LT

DEPARTMENTS

ROM WITH A VIEW 3
I/O 4
THE IDEA BOX 5
NEW PRODUCTS 20
DEFUSR 22
FULL POWER 23
THE CUSTOM 200 26
PORTABLE 100 CLASSIFIEDS 27
ADVERTISERS' INDEX 28

ROM WITH A VIEW

As our cover suggests, sometimes things go haywire. Planes can crash, and so can computers. If things come unglued, a pilot has a parachute to bail him out. When your laptop goes kablooey, what do you have?

Of course, the pilot must prepare *in advance*—that 'chute is useless if it's still back at the hangar!

You must prepare in advance, too. Data can be rescued after a cold start by typing in a *BASIC* recovery program like those published in past issues. Like a parachute, you must have the program with you when disaster strikes. It's rather crude, slow, and somewhat deadly—a typo can destroy the data you're trying to save—but it works.

MAYDAY, in this issue, is a better parachute. Small, slick, and quick, *MAYDAY* is much safer to use. And you won't accidentally leave this parachute in the hangar—your laptop is always wearing it!

With your safety thus assured, here's what else is happening....

All of you who lamented the unavailabity of Node Systems' RAM expansions will be happy to hear this: *Datapac* is back! Look for their ad in this and future issues. Give 'em a call and a great big ``Thanks!'' from the Tandy laptop community.

Tony Anderson's *CRDFIL.ROM* is already in a reviewer's hands, so you'll soon have detailed info on the the first major ROM program released in years. CompuServe subscribers have already enjoyed *CRDFIL* for a long time: Tony, a veteran Model 100 Forum Sysop, made earlier versions available on the forum while developing and refining it. I think it'll be a big hit. And he's got more on the way—see his ads.

Printers: Mike "IDEA BOX" Daigle has the *Diconix 150 Plus* portable printer now and will soon share his Zenlike impressions with us. (Can't wait? Call Zero-G Computers at 914-496-5199.) Terry Kepner has Toshiba's new *Express Writer 301* portable printer. I said he could review it if I got a raise. He just smiled.

Others: Stan "Skateboard" Wong has completed his review of King Computer's *RBASIC* compiler. Look for it soon. And the Optical Data Systems *BAR+* barcode system review is undergoing some final touches.

1400LT owners: Guess what came in the mail today? A review unit of the SPC's external hard drive (I get this one, Terry!). And guess what Tandy replaced its "discontinued" 1400LT with? The *1400FD* and *1400HD*, with floppy and hard disks, respectively. New machines are lighter than the LT, but are otherwise the same. Nice move, Tandy!

Dumb: Last months FULL POWER column was headlined NOT FOR BEGINNERS ONLY. (Sorry, Bill!) And we got so busy we had to delay the announcement of our Poetic License contest winner. Yeesh!

Now, pack your 'chutes, and let's jump into this issue. Geronimo!

Nuge

Toolbox

Manuscripts were typed into Microsoft Word 3.0 on a Tandy 1400 LT, where they were edited, spell-checked, and had basic format instructions inserted. From there they were loaded into a Tandy 4000 (80386 CPU, Tandy EGA Monitor, Tandy LP-1000 LaserPrinter) desktop computer and placed into Aldus' IBM PageMaker 2.0a. There they were put into a rough approximation of the magazine's final appearance. Here, pull quotes are placed, headlines, intros, and bylines are sized and positioned, and advertisements positioned.

Next, the magazine was ported over to our Art Director's Macintosh II, using the 1400 LT and Mac-link. She then went over the publication using Aldus Macintosh PageMaker 3.01, making final design decisions on photo, figure, and listing sizes and placements. She precisely placed the text and added all the little things that go into making a nice looking publication.

Page previews were output from her Laserprinter. When everyone was satisfied with the appearance, the Macintosh disk was sent to Colorite Corp. in Wisconsin for final output directly onto photographic paper. The finished magazine was then delivered to the printer, who printed it, labeled it, and mailed it to you.

TERRY KEPNER'S
portable 100

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NODE IS BACK!

Concerning the article "Taming the 200" (December '88), could I find out more about the "Node Datapac with 256K of luxurious file space"? Is there technical literature on this product? Where can I get it?

Is this 256K of memory just a series of smaller memory banks, like the three banks of 19K I already have? Can it be installed and used without any ROM being added? Does this 256K RAM replace the existing three banks of 19K RAM chips? Is the 256K a "RAM"?

I like the products mentioned but would like to be sure what I'm getting.

It appears the 256K RAM addition is a sophisticated "peripheral" memory bank and not more "K under the key."

Gerry O'Hara
Edmonton, AB CANADA

Node is back with us, with both 128K and 256K Datapacs for the Tandy 100, 102, and 200, priced at $199 for the 128K and $299 for the 256K. Look to their advertisement for further details.

-TK

ROM/RAM EXPANSION

I have a Model 100 and I would like to get a ROM expansion bank for it, as I have several ROM chips for it, but to use them I always have to tear down the printer, disk drive, cassette, etc. I have checked with Traveling Software, Personal Computer Support Group, and Cryptronics Inc. They don't carry them any more. Maybe you can help me—I would appreciate it.

Well, I have been enjoying *Portable 100* and learning a lot from it but for some reason it has seemed to stop (January was the last issue that I have received) so I am getting behind in my reading. I hope that my two-year subscription renewal didn't have any effect on it.

It would be real nice if someone could come up with a 32K RAM chip—three of them. That would be 108K inside the computer and no attachment on the outside (32K RAM chips like the 32K ROM chips). Just a little thought from spare-time thinking. Keep up the interesting programs, as I am still learning.

Carroll Piper
Laramie, WY

Currently, nobody is making a ROMbank device for the portables. Ultrasoft Innovations' UltraCard will let you copy ROM's into its cards and run them from there, which would be much more convenient for you (store several ROM programs in one card). One big advantage to this scheme is that you could then modify/customize the programs to fit your needs.

As for internal RAM, P.G. Design came up with a four-bank (3 chips plus the one in your computer = 128K), but they too have stopped making them. Part of the reason is that RAM chips have trebled in price, making it far too expensive to make anymore. Would you want a 3-chip expansion if it cost $1,000? I don't think so, and neither does P.G. Design. If chip prices drop, we might see a change in the attitude and a re-appearance of RAM expansion.

There are both 128K and 256K Datapacs for the Tandy 100, 102, and 200

Sorry about the late magazines, but a printer foul-up has thrown our schedule off by over a month. You'll still get your issues, just late.

-TK

THAT'S NOT A BUG, IT'S A FEATURE!

I have a hardware problem about "The Budget Banks," an article that appeared in the May and June 1988 issues. I would appreciate a response from the authors, Paul Globman and James Yi, concerning the following glitch.

I very carefully installed the modified CMOS RAM chips in banks #2 and #3 in my Model 200. I followed the procedures in the correction article that appeared in the June 1988 issue. I verified that all components were fully functional prior to assembly.

Lo and behold, everything functions as expected—well, almost everything. After I finished the assembly, and starting with a cold start, the ROM menu in bank #1 was normal, all programs listed. Switching to bank #2, SCHEDULE was missing; switching to Bank #3, SCHEDULE was missing. Puzzling?

Needless to say, I checked over and over for possible shorts and/or miswiring and could find none. I tried to create a *NOTE.DO* file in *TEXT* in bank #1 and could do so, but—not in banks #2 and #3. I used the same chips from the same source as the authors, HM43256LP from JDR Microdevices. Perhaps I missed a further update. Any insight into this problem would be sincerely appreciated.

By the way, *Portable 100* is all I expected and more—this one article alone saved me $350.00! To sum it up, I'd rather pay more for the magazine than see it fall on hard times and disappear. Quality is far superior to quantity!

Jerry Evans
Fremont, CA

There's no problem with either the "budget" bank article or your own work. If you'll look on page 3 of your Tandy 200 owner's manual, in paragraph #5, it says SCHEDL *is available only from Bank 1.*

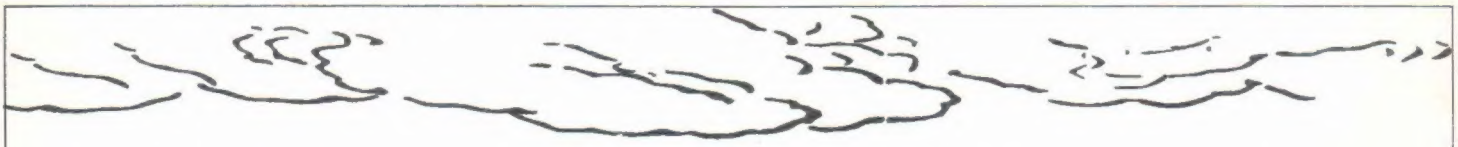
-TK

LOST CHARACTERS

Now that I am into machine language programming (for communications) with the M100, it didn't take me long to find a fix for the garble I was getting when using the M100 to test protocol at 1200 baud. Your May 1988 article on troubleshooting (page 24) by Mr. Oulette does not mention any problem with garble—probably because the author did not evoke the conditions that would cause it. If he had observed the results of a full 1200-baud data stream, of a size greater than the capacity of two screens, he would have observed occasional character omissions. This garble would only add to the troubles of the troubleshooter!

The problem is in the scroll. The 1200-baud data fills the screen quickly but slows down during the scrolling process, and the processor is not free to do its I/O work. The unit being tested may have the capability to respond to the M100's call to stop sending. However, this is not always

Continued to page 6



The Power User

Welcome back. The other day at work (I work part-time at a software store—you didn't think that I made all my money from *writing*, did you?) a salesman from a huge and powerful word processing dynasty dropped in. He claimed to have an appointment with Jim, the owner. Jim wasn't there, but I reached him on the phone. He told me he didn't know a thing about the appointment. When I told the salesman, he was surprised—and unconvinced.

"I called just last month," he stated. "I spoke with Jim myself."

Knowing Jim's aversion to salesmen, I had to think this guy had made a mistake. Jim would rather have an appointment with the Ayatollah Khomeini to explain why he was caught with an autographed copy of *The Satanic Verses* under his pillow.

Soooo, when I suggested to the salesman that he might be mistaken, he said, "I don't think so, but I'll check—be right back." With an *I know something you don't know* look in his eyes, he dashed out the door to the trunk of his company car. He came back a minute later, carrying a small briefcase that looked like it weighed 50 pounds. Then I caught a glimpse of the corporate logo that proudly embellished the side. This was no briefcase after all—it was a Toshiba 5100, a "portable" monument to the belief that you can never have too much of a good thing. From his other hand dangled a power supply, its twin cords dragging on the ground behind him like snakes that had starved to death. It appeared that he owned no stock in Duracell.

He managed to lift the Toshiba up to the counter, which impressed me enough to make me warn myself not to do anything to cheese this guy off—if he carried the Schwarzenegger Special around much, he was probably stronger than he looked. He set the unit between us. He looked at it like Dirty Harry gazing fondly at a loaded .44 Magnum. Suddenly, a thought occurred to him—glancing around like a junkie looking for a fix, he held up the power supply and asked, "Do you have an outlet handy?"

I resisted the impulse to pretend to search my pockets. Instead, I directed him to the nearest outlet. He plunged the power cord's prongs into the socket the way I'd plunge my tongue into Connie Chung's ear if I weren't a happily married man. He plugged the other end into the back of the Toshiba. He opened the lid. He turned it on. He waited. I waited. Then I wandered over and waited with him. We waited together. We waited in unison. We wai—

"Ah-ha," he exclaimed suddenly, snapping me out of my coma. "Here we go."

I looked over his shoulder. The Toshiba's attractive fluorescent-orange-on-dog-poop-brown display had verified the fact that the hard drive had decided to cooperate and not send months' worth of data into The Format Zone. He selected an item on the menu, hit *RETURN*, and waited for the application to load. I became distracted with wondering how many holes there were in the ceiling tile above my head. When his application came up, he used another menu to find and open the right folder to access his data. He used another menu to select the specific data file he wanted to load into the application. Finally, he hit *RETURN* to load his file.

We waited together. We waited in unison. We wai—

"OK," he said, making me lose count. The data were before him at last. He turned to me and, rubbing his hands together like a fly about to devour something unspeakable, said "Let's take a look, shall we?" His tone of voice revealed his conviction that the Toshiba was about to vindicate him and establish once and for all that puny humans could be made godlike and infallible if they would just sell their homes and give the proceeds to a local Computerland store.

"Yes," he declared triumphantly, "here it is." He pointed. I looked. Yup. Sure enough. There it was. Five thousand dollars worth of hardware displaying three lines of information that could have been jotted on the back of a business card. The name of the store wasn't ours. It was close, but it wasn't us. The people he wanted had moved their store to an adjacent city about 8 miles away. It was pure coincidence that both owners were named Jim. I gave him the bad news.

He looked defeated. After a moment of silence, he doled out an embarrassed apology. With a sigh, he began the process of undoing his system. He corrected the file. Then he saved the file. Then he closed the folder. Then he quit the application. Then he parked the hard drive. Then he shut down the Toshiba, closed the lid, unplugged both ends of the power supply, and began coiling the cords around the box. But as he did all this, his attitude brightened. You could almost see his spirits rising. Perhaps the familiar ritual of servicing the needs of the Toshiba had a soothing effect on him. Perhaps he was comforted by the realization that the confusion was caused by human error, that the Toshiba itself had not failed him. Perhaps he just noticed it was lunch time.

As he prepared to leave, I nodded toward the Toshiba and asked "How do you like it?"

His face glowed with the luminance of True Love. "It's wonderful," he gushed. "I'd be lost without it."

"Looks to me like you're lost with it," I observed.

I wish now that I hadn't said it. I can still see the way a little bit of the light went out of his eyes, as if somewhere in the back of his mind a tiny rat dropping of doubt had soiled the pure white image of the Toshiba.

Oh, wicked tongue! *Now* what could I say? Was there anything I could offer that would put the light back in his eyes and the smile back on his lips? Should I tell him that he had the right idea, that

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from Tri-Mike Network East.

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TMN DEBUGGER

from Tri-Mike Network East.

Who ever heard of an assembler without a debugger? TMN offers one to use with the above assembler. (Model 100/102 only). **$36.95** --Portable Disk Drive disk. 39.95--Standard Tape Cassette.

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Continued from previous page

computers *could* be used to store data that used to be written on bits and scraps of paper, only to be lost or washed with your shirts or used to pick your teeth? Should I reveal that it could be done quickly and easily—less than three pounds, instant access, nothing to load, nothing to save? Should I encourage him to keep on keeping on, to strive for the path to enlightenment, to hope that someday he could become Zenlike enough to transcend the need for 60 meg hard drives and gas-plasma displays and keyboards with 101 keys?

No. In the end, I said nothing. You can lead a horse to water, but you can't teach him new tricks. I thought about that. I thought about it some more. I thought about seeking professional help.

Then, as the broken figure of the salesman bore the burden of the Toshiba toward the door, I thought about the Tandy 200 packed in my "portable office" bag under the counter. It made me feel like a twelve-year-old boy contemplating a secret stash of *Playboy* magazines.

Hey, salesman—I know something *you* don't know.

by Michael Daigle

INPUT/OUTPUT

Continued from page 4

the case. For instance, some satellite data receivers do not have the memory to handle the stream flow and thus, will not allow such protocol. But more important, a technician does not have the time to set up handshaking, since it may be hardware or a strange type of software control. If hardware, does it require a change in cabling? It is much easier to strap pins 4-5 and 6-8-20 on the tested unit's RS-232 and say, "Let it pour!"

The fix is simply to enter *TELCOM* a different way.

1. Enter *BASIC*.
2. Type *CLS: CALL 16959: CALL 20809* and press *ENTER*.
3. Proceed as normal.

CALL 16959 turns off the scroll and *CALL 20809* enters *TELCOM* at a point beyond the code which turns it back on. The screen fills but overwrites on the last line. *TELCOM* works exactly the same in all other aspects.

Greg Dasso
Clancy, MT

That's right, the LCD is the one to blame for the character loss at 1200 baud. But notice that is only on incoming characters. You can transmit at much higher speeds without difficulty. You ought to see an upload at 19,200!

HOW ABOUT A CHECKSUM PROGRAM?

I've just typed in today the Scarney 3000 game from the January 1989 issue. It's great! Also the two-line *KILL.BA* program that allows file kills from the menu. And the Memory Concentration game; works fine!

I miss a *RENUMBER* program for the M102's *BASIC*. It would be most useful. Will one of the disks have one?

I'm writing this on my 32K Model 102. I have the TTXpress printer and PDD-1 drive for 3.5-inch 100K disks. I love it! I also have a Timex/Sinclair 1000, a 128K Kaypro 4 (CP/M), a 128K Apple IIC, and a 640K Hyundai Turbo-XT clone.

More RAM would be nice, but at present I'm unwilling to spend what I paid for my M102 (on sale) on the expensive Gold Card. My applications just don't justify it. Maybe they'll drop in price. The drive works fine, but I don't always carry it.

An article comparing the DOS systems would be nice; has that been done? I bought *TextPower* and *DiskPower* with my drive and like both. But now I've added Ultimate ROM II for the database and outliner, and I can't use *View80* because of a *HIMEM* conflict. I don't want to purchase another DOS if I can afford it.

I enjoy your magazine immensely and am anxious to see what Six-Pack brings. I'm not a bad typist and am not sure all the programs will be useful to me. How about working up a *CHECKSUM* program to verify our inputting from listings? *InCider* and *PC* have these and they are very nice.

Keep it going! The Model 102 is most useful to me and I don't want this magazine to die.

Gene Brewer
Temple, TX

There's no RENUMBER *program yet—that I know of. Someone may have one in the works, though. Likewise the article. A* CHECKSUM *program, too, is under consideration—but* InCider *and* PC *have larger staffs with more time for projects.*

-TK

BACKING UP IS HARD TO DO

In your May 1988 issue of *Portable 100*, you reviewed *T-BACKUP*. Several months ago I tried to buy it, but was told that it had been discontinued. Do you know a source? I was wishing for a tape of all of my favorite programs after some unknown glitch turned them all into graphics characters, and I then had to reload everything individually.

M.S. Brown
El Cerrito, CA

I was told that somewhere in the depths of the CompuServe dungeons (databanks) was a program that operated essentially the same as the one from Traveling Software. Drop by the Model 100 Special Interest Group (M100 SIG) and ask them were they stashed it and what it's called.

-TK

?IO—CORRECTIONS

No, it wasn't deja vu; we actually ran Russ Wesp's April letter again in May (p. 6). What should have appeared instead was my confirmation of his fix for Men-u-tility's CODE-C/CODE-V *problem. The program's author also confirmed the "rename" bug and said it was too small to bother fixing.*

Kodak called to say they had accidentally juxtaposed the prices of their Diconix 150 Plus *printer in their press release. The correct suggested retail prices are $499.00 (parallel interface) and $519.00 (serial interface), not the other way around. Of course, a call to Zero-G Computers at (914)496-5199 will likely get you one at far less than the list price anyway.*

-MN

We welcome all letters from our readers, whether critical or complimentary. We print as many letters as space permits (some are edited for space considerations). Address your correspondence to: Portable 100, I/O Dept., P.O. Box 428, Peterborough, NH 03458-0428.

COMPATIBILITY: Tandy 100/102, 200

Mayday!

This sure beats a wing and a prayer!

by Wilson Van Alst

Chuck, a friend of mine who's a TV news photographer, uses his Model 102 all the time. He writes nifty programs in soft, safe *BASIC*. About a month ago we got into a conversation about cold starts. He had never had one. Still, Chuck is absolutely conscientious about backing up his files.

I admire people like that.

Unfortunately, I'll never be like them. Backing up files, to me, is like getting up at 7:00 A.M. on Saturday to wash the car. It sounds like a noble plan—but it just doesn't happen as often as it should.

Thank goodness for drive-through car washes, and *MAYDAY*.

WHATSIT?

MAYDAY, in its various disguises, is a cold start recovery program for *TEXT* files. At just 45 bytes in the M100/102, and 30 bytes in the Tandy 200, the program is small enough to sit quietly in your computer as an insurance policy against the day you need it. When that day comes (and it will, Chuck, it will ...), you simply cash in the policy—and about three seconds later, you'll have access to virtually everything that was in your *.DO* files before your computer left for Admiral Byrd land.

MODEL VARIETIES

Although the core element of *MAYDAY* remains the same (I'll go through a techie tour later), it installs and runs differently for different computers. If you have the Model 100/102, *MAYDAY* becomes an invisible file, and you run it by *CALL*ing a specific address after a cold start. The T200 version of *MAYDAY*, on the other hand, loads as a *.CO* program, designed to be stored in a "safe" bank (or two), then moved to a cold-started bank for execution.

MAYDAY.100

This is for the 102, too. You'll notice that the *MAYDAY* installation program for these computers is a lot bigger than the T200 loader. Don't feel cheated: the actual recovery code boils down to just 42 bytes once it's installed. But the loader is larger because the 100/102 comes in several memory configurations, and *MAYDAY* has to adjust itself for all of them. For people with multiple-bank M100's, the loader has also been written to work with P.G. Design's *0MENU* program (version 2.11).

HOW TO INSTALL

Here's how to install *MAYDAY* on computers that don't use *0MENU*.

- *MAYDAY* needs to reside as the first *.BA* file in memory. Back

```
Ø DATA MAYDAY.1ØØ/ØMENU (c)1989 Wilson V
an Alst
1 CLS:READF$:IFLENF$<>4ØTHEN7ELSEFORI=63
919TO64128STEP11:F$=""
2 FORJ=I+3TOI+1Ø:F$=F$+CHR$(PEEK(J)):NEX
T
3 IFF$<>"MAYDAYBA"THENNEXT:BEEP:PRINT"Ru
n Again!":SAVE"MAYDAY"
4 X=I:U=PEEK(64192)+256*PEEK(64193):V=PE
EK(X+1)+256*PEEK(X+2)
5 IFV=U+1THENV=V+4:OK=1ELSEV=34323:FORI=
VTOV+43:A$=A$+CHR$(PEEK(I)):NEXT
6 IFA$="abcdefghijklmnopqrstuvwxyzabcdef
ghijklmnopqr"THENOK=2
7 IFOK=ØTHENBEEP:PRINT"Can't install.":E
ND
8 P=V+12:P(Ø)=33:P(2)=INT(P/256):P(1)=P-
256*P(2)
9 FORI=ØTO2:POKEV+I,P(I):NEXT
1Ø FORJ=ITO41:READD:C=C+D:POKEV+J,D:NEXT
11 IFC<>5775THENBEEP:PRINT"Bad Data.  Ch
eck listing.":END
12 P=MAXRAM-U-999:P(1)=INT(P/256):P(Ø)=P
-256*P(1)
13 FORI=ØTO1:POKEV+I+19,P(I):NEXT:PRINT
14 PRINT"   MAYDAY installed.":PRINT:PRI
NT" Write down your CALL address:"V
15 PRINT:PRINT"  ...then press any key t
o continue"INPUT$(1)
16 IFOK=2THENMENUELSEPOKEX,PEEK(X)OR8:PO
KEX+8,34
17 DATA17,192,252,2Ø5,195,1Ø1,195,192,25
2,33,219,92,2Ø5,6,34,1,255,255,2Ø5
18 DATA1Ø9,1Ø7,216,126,254,26,2Ø4,3,52,2
54,127,2Ø4,3,52,35,223,218,2Ø5,252,199
19 J=1:L$="run2Ø":GOTO22
2Ø J=9:L$="run21":GOTO22
21 J=17:L$="Menu"
22 FORI=JTOJ+7:A$=A$+MID$(STR$(I),2)+CHR
$(13):NEXT:A$=A$+L$+CHR$(13)
23 V=6545Ø:FORI=1TOLEN(A$):POKEI*2+V-1,A
SC(MID$(A$,I))
24 POKEI*2+V,Ø:NEXT:POKEV,I-1
```

Listing 1. MAYDAY.100, *which loads* MAYDAY, *a machine-language program for Model 100/102's that recovers your .DO files after a cold start.*

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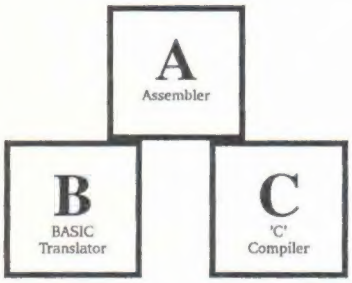

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up and *KILL* any existing *.BA* programs, including extension-less files like the ones used to access some option ROM's (*UR-2*, *RANDOM*, etc.). Use *LFILES OFF* to remove *POWR-DOS*, if it is present.

- Type the *MAYDAY* listing into your computer as a *TEXT* file.
- Enter *BASIC* and use *F2* (*Load*) to load the file as a program.
- With *F3* (*Save*), save the program under the name *MAYDAY*.
- Return to the main menu and run *MAYDAY*.
- In a few seconds you should see a notice that loading is complete. You'll also be given a *CALL* address for actually running the recovery routine. WRITE DOWN THE CALL ADDRESS and find a safe place to put it (like taping it to the inside of your battery compartment lid).
- After you've had a chance to note the *CALL* address, press any key (as the loader instructs you), and the loader program flashes line numbers on your screen as it automatically erases the dead weight out of itself, everything except for the actual recovery code, to save valuable RAM.

If you use *0MENU*: Don't worry about the first step above. Keep *0MENU* active in your computer, along with any other files currently in use, and load and run the *MAYDAY* loader. It "hides" the recovery code in an unused area within *0MENU*.

ERRORS?

The installation program attempts to trap anything that might cause a serious problem later. If, for example, you mistype the *DATA* lines from the program listing, you'll be notified of a *DATA Error* and advised to check for typos.

The most common problem is indicated by a *Can't load* message, which usually means you have some other *BASIC* program in the number one position that *MAYDAY* needs. You will have to kill that program. If it's an invisible file, you'll need a utility like *CHANGE.BA* to make it visible so that you *can* kill it. (*CHANGE.BA* can be downloaded from CompuServe, GEnie, or the *Portable BBS*, and is also available on the October 1988 *P100-To-Go* disks.)

You may also get a *Can't load* message if you try to install *MAYDAY* on top of itself, or if you've made a typo in line 0 of the installation program. This line must be entered exactly as it appears in the listing.

RECOVERY

When the time comes to cash in your *MAYDAY* insurance, enter *BASIC* and type *CALL nnnnn*—where *nnnnn* is the address you wrote down during *MAYDAY* installation—followed by the *ENTER* key.

See other suggestions under "RECOVERY NOTES," below.

I FORGOT ...

For M100 users who somehow misplaced their *MAYDAY CALL* address, there's a general formula that should get the job done—assuming you *don't* have *0MENU* in your computer: *CALL -x*2^10* where *x* is the memory size of your computer in kilobytes. Thus, for a 24K computer, you would use the call: *CALL -24*2^10* (please note the minus sign; it's important).

If you've got a 32K computer, you can also use the dazzling expression: *CALL 8^5* which, for the sake of mnemonics, can be thought of as "Call eight-to-five." (Teachers' hours, not bankers' hours.)

```
0 'MAYDAY.200 loader v1.2  2/25/89
1 '(c)1989 Wilson Van Alst [76576,2735]
10 READT:READE:READD:FORI=TTOE:READP:POK
EI,P:C=C+P:NEXT
15 IFC=DTHENSAVEM"MAYDAY",T,E,T:MENU
20 PRINT"Program data error":BEEP
98 DATA 63574,63603,4046
99 DATA 33,27,111,205,115,45,1,200,75,20
5,168,130,216,126,254,26,204,84
100 DATA 65,254,127,204,84,65,35,223,218
,99,248,199
```

Listing 2. MAYDAY.200. *This* BASIC *program loads the machine-language program* MAYDAY *for the Tandy 200.*

MAYDAY.200

This program is a straightforward *.BA* loader to create *MAYDAY.CO*—the actual recovery routine. You can kill the *.BA* file once its job is done. Here are the steps:

- Type the *MAYDAY.200* listing into your computer as a *TEXT* file.
- Go into *BASIC* and use *F2* to load it as a program.
- Still in *BASIC*, use *F4* (*Run*) to run the program.
- With *F1* (*Files*) confirm that *MAYDAY.CO* is on the menu.
- Type *NEW*, followed by the *ENTER* key to erase the *.BA* program.
- Return to the menu and copy *MAYDAY.CO* into one or more "safe" banks in the computer.

The only error that's likely when you run the loader is a typo in the *DATA* statements. The installation program checks for that, and it notifies you if the *DATA* isn't correct. Check your *TEXT* file against the program listing and repeat the above steps starting at the second step.

T200 RECOVERY

Since T200 crashes usually affect just one bank of the computer, you should have a good copy of *MAYDAY.CO* somewhere in your machine after a cold start. Copy it to the bank that blew up and run it from the main menu. See the following section, "RECOVERY NOTES," for advice on what to do next.

RECOVERY NOTES

Once a cold start happens and you've run *MAYDAY*, you'll find yourself back at the main menu, where two things have happened: free memory has become very small, and you'll see a new file named *FOUND.DO*. It will contain virtually all the *TEXT* material that was in your computer when the penguins arrived.

It will also contain a bunch of "garbage"—the remnants of *.BA* and *.CO* files—that you'll have to get rid of.

This is the general recovery plan: Use the *F7* (*Select*) and *F6* (*Cut*) keys to delete the garbage. Then use *F7*, *F6*, and *PASTE* to move blocks of FOUND text into separate files, just like the ones you had before the cold start.

It's important that you dispose of the garbage first, because it will hog memory that you'll need for cutting and pasting the good stuff. Here's a step-by-step guide to getting the job done:

- Open *FOUND.DO*, and use the *SHIFT-DOWN ARROW* keys to "page" through the contents until you find recognizable text.
- Press *F7* at that point to "select" the spot.
- Hit *CTRL-UP ARROW*, which takes you to the top of the file.
- Press *F6* to "cut" all the junk at the top of *FOUND.DO*.
- Now use *F1* (*Find:*) to make your way to the bottom of the

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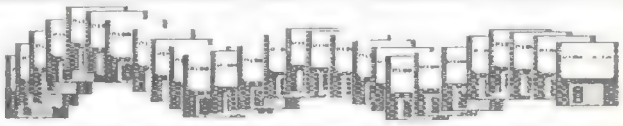

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recovery block. The character you want to find is *GRPH-l*, (that's a lower-case "L", incidentally, not a one), which *MAYDAY* uses as a "divider" between recovered text files. You should see a right-pointing arrow on your LCD screen.

• Repeat the *F1*, searching for *GRPH-l*'s, until you see a block of good text followed by garbage. You are now at the end of the useful recovery material.

• Starting with the beginning of the garbage, use *F7*, then *CTRL-DOWN ARROW*, then *F6* to select and cut the remaining junk.

This step may take a full minute or more to complete, depending on how much trash there is to delete. When the blinking cursor re-appears, though, *FOUND.DO* will be pared down to minimum size, containing only the text you want to retrieve.

So far, the process has been mostly mechanical. Next, however, you'll have some judgment calls to make, as you use "Cut" and *PASTE* to create individual files from the large block of information in *FOUND.DO*. There is one warning you need to keep in mind during this phase:

If you fill the computer's paste buffer with too much material, you will not have enough free memory to put that material anywhere.

In other words, if you put more stuff in the *PASTE* buffer than you have free memory, it will be "stuck" there. And—now that you've read this warning—you will be very embarrassed if it happens to you.

The best plan, as you restore your original files from *FOUND.DO*, is to play it safe. Keep tabs on the amount of free memory in your computer, and make sure the material you cut is small enough to find a home when you try to *PASTE* it somewhere. (As a guideline for the M100/102, you can cut and paste about three screens of text for every 1,000 bytes of free memory in the computer. On the T200, of course, 1,000 bytes would amount to 1.5 screens.)

WHAT IF *MAYDAY* DOESN'T WORK?

Unfortunately, some computer crashes are worse than others. When you punch a *SHIFT-CTRL-RESET* combination, for example, you get a (comparatively) benign cold start. It wipes out your directory and resets all the system *pointers*, but the actual *contents* of user memory are still intact and can be recovered with a program like *MAYDAY*.

Sometimes, though, stampeding electrons break through the fences and trample the row crops. Random chunks of memory get wiped out everywhere in the computer including the directory, the system pointers, *and* the area where you kept your files. In the worst case, *MAYDAY* itself can be destroyed, and when you try to *CALL* it, you'll get yet another cold start. The only consolation I can offer, if this happens, is that *no other* recovery method would have restored your files either.

THE TECH STUFF

I've included a commented assembly language source code listing in this article to let the curious take a look at how *MAYDAY* works.

The very top of the program is a simple routine that moves the actual recovery code to *TELCOM*'s alternate screen buffer, so the

```
;MAYDAY.1ØØ  v1.1  2/25/89
;(c)1989 Wilson Van Alst
;
;*** ROM AND SYSRAM ADDRESSES:
opendo  equ Ø871Ø ;create DO file
convrt  equ 13315 ;xri 128/mov m,a/ret
name    equ 2Ø75Ø ;'RAM+',Ø :file name
mvhdØ   equ 26Ø51 ;mov HLtoDE till Ø
makhol  equ 275Ø1 ;expand DO file
caladr  equ 63Ø73 ;lohi adr of BA CALL
altbuf  equ 647Ø4 ;altLCD memory
;
;*** ASSIGNED OR DERIVED VALUES:
size    equ 292ØØ ;recovery file size
bias    equ altbuf-pgm ;offset for pgm
;
;*** *** *** *** *** *** *** *** ***
;-- move MAYDAY to AltBUF:
start   lxi     h,pgm
        lxi     d,altbuf ;DE->run adrs
        call    mvhdØ    ;move pgm
        jmp     altbuf   ;execute
;
;-- MAYDAY, the program
;       -- make a Ø-byte .DO file:
pgm     lxi     h,name   ;HL->name,Ø
        call    opendo   ;create file
;               -- exit:HL->filtop
;
;       -- expand file for recovery:
        lxi     b,size   ;BC=assignd val
        call    makhol   ;expand file
        rc               ;if no room
;               -- exit:HL->file top
;                       DE->end of file
;
        -- remove illegal chrs:
lup     mov     a,m      ;A=fil chr
        cpi     26       ;eof marker?
        cz      convrt   ;yes:change it
        cpi     127      ;illegal
        cz      convrt   ;yes:change it
        inx     h        ;HL->next chr
        rst     3        ;HL=DE?
        jc      lup+bias ;no:get more
endo    rst     Ø        ;yes:MENU
;
        end
;
```

Listing 3. The assembly code for MAYDAY.100 *to help you understand how the program works.*

code can handle the chores described below without overwriting itself in the process.

The key element in the recovery process is a ROM routine called *MAKHOL*. This *CALL* is documented in Tandy's technical manuals, but the authors fail to mention a couple of important points: While *MAKHOL* copies blocks of data and re-computes system pointers to create a "hole" within a *.DO* file, the *previous* contents of that hole are not changed. And when *MAKHOL* completes its job, the DE register points to the first byte of data following the newly created hole.

The *MAYDAY* scheme takes advantage of both these features. First, though, it uses an undocumented ROM call dubbed *OPENDO* (Thanks to James Yi, on the CompuServe M100 forum, who brought my attention to this one). This call will open a *TEXT* file named after any six-byte (or fewer) ASCII string with a 0 terminator. Since the string *'found',0* already exists in ROM, I used it.

When *FOUND.DO* is first created, it's a tadpole—an empty file containing a single *CHR$(26)* end-of-file (EOF) marker. Here's where we use the *MAKHOL* magic. We tell *MAKHOL* to create a very large hole in *FOUND.DO*. as large as the available RAM will permit without overwriting the system stack. *MAKHOL* does this by moving the EOF marker to the end of the hole, re-computing various system pointers, and "declaring" *FOUND.DO* to be the size we specified.

The tadpole has suddenly become a whale, and it has swallowed virtually everything that was in RAM.

Some of the new contents, however, are "illegal" in the context of a *.DO* file. Specifically, *CHR$(26)*'s and *CHR$(127)*'s will cause problems, and they need to be cleaned up before you return to the menu. So *MAYDAY* quickly loops through the file, converting those characters with a ROM call that sets their most significant bits. (This is where we get the *GRPH-l* file separator mentioned earlier, by the way.)

Because the *MAKHOL* routine leaves DE pointing to the very end of *FOUND.DO*, you can use the ROM's *RST 3* code to control the clean-up loop; when it's done, you're done.

A FINAL NOTE

About 7:00 o'clock last Saturday morning, my friend Chuck was out washing his car. Sorry to say, he left a window open. Just a crack. Just enough to spray a fine mist on the front passenger seat where his M102 was grinding away on an 11K database sort.

Did the mist cold start the computer? Yup. Did Chuck have his file backed up? Yup. But he didn't need to. He had *MAYDAY*.

Editor's note: Portable Disk Drive owners who use Tandy's FLOPPY *disk operating system (DOS) must make minor patches to* FLOPPY *before using* MAYDAY. *The PDD-1 (100K drive) patches appeared in "DOS Patches" (Sept. '88, p. 22) for Tandy 100/102, and in "DOS Patches, Part II" (Nov. '88, p. 15) for Tandy 200. The PDD-2 (200K drive) patches for Tandy 100/102 and 200 appeared in "DOS Patches III" (Mar. '89, p. 6).*

Users of some versions of Disk Power *may also have difficulty and should check with Ultrasoft Innovations before using* MAYDAY.

With all other DOS's, MAYDAY *should work just fine.*

-MN

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COMPATIBILITY: Tandy 100/102, 200, Kyocera KC-85, Olivetti M10, NEC 8201/8300 (See Editor's Note.)

The Model 100 Hits the Water!

Score swim meets with your laptop.

by Louis Self

When my son was on the Roadrunner swim team here in Phoenix, I wrote a program to score swim meets of up to eight teams automatically. In the program (see Listing 1), I can enter each team's lane number and finish rank for each event. The program calculates the team scores and prints the data on hardcopy after every race to keep us up to date. It prints a score summary at the end of the meet.

Similarly, you can also use the program for track and other types of meets with similar scoring.

Of course I sought the pie in the sky. With my Tandy 200, that meant making the program simple to use, packing it with features, and using little memory in the process. I think you'll like what I came up with.

THE PROGRAM IDEA

Lines 20 to 120 set the program up for the meet. This is followed by two loops and then the subroutines. Thinking logically (I hope) from the largest to the smallest programming unit I have the meet (the whole program), the scoring block (the loop from line 240 to 510) and the event (the loop from line 280 to 490). A scoring block is a series of sequential events with identical scoring.

The meet is concluded with an endless loop in line 5000. Press break to regain control of your computer.

SCORING A MEET

You'll find it helpful if you have a numbered list of events to follow during the swim meet. *SWIM.BA* (besides the *P100-to-Go* disks, also available on CompuServe's M100SIG) defaults to the test data in line 70 unless you delete the line's initial apostrophe to activate either of the other data statements (line 40 or 50). Currently they contain the scoring sequences that I use for the city of Phoenix swim meets. Modify these lines if your scoring is different.

Line 30 suggests how to do it. The *1,6,4,9,7,3,1* in line 40 means that for events *1* to *6*, the first *4* place finishers will be awarded *9*, *7*, *3*, and *1* points respectively. That sequence continues until the *999* indicates the end of the meet. A maximum of six places can receive points.

If you intend to use a printer, make sure you have it ready when you first run the program, otherwise it will let you know a printer is not on line and give you no printer output.

RUN the program and answer the questions on the screen. It automatically saves your meet name, team names, and lane assignments to *MEET.DO*, so you will not have to reenter them next time you run the program. Of course you can change the information next time and it will automatically update *MEET.DO*. (You can even place the wide bar cursor over *MEET.DO* and modify the program from *TEXT*.)

The program shown in Listing 1 has been used for swim meets at the Arizona State University Aquatics Center. Photo by author.

WHICH WAY FROM HERE?

Immediately after I got the program working I came down with a severe case of *tweaking obsession*. The most fun (i.e., work) was developing automatic routing of the output, so that is what I would like to highlight in this article. My challenge was to create a generic subroutine that could optionally route the output to

- Both the screen and the printer
- The screen only
- The printer only
- The printer if ready, otherwise the screen
- Neither

This uses the device independence that our laptops offer. Although *device independence* may sound like robots taking over the world in the year 2020, it merely means that we can send output to (or receive input from) any of several devices.

Where the output would go in a subroutine would depend on the calling statement as well as the conditions existing at the time.

A LITTLE *BASIC*

Look at line 180 of the program listing. It opens the screen (*LCD:*) as device number one, and it opens the printer (*LPT:*) as device number two, but only if it is on line and ready. Now the program can simply *PRINT#1* to the screen and *PRINT#2* to the printer. Take it a step further by making the numeric variable *F* equal to one for screen output, and equal to two for printer output (see line 1420). Other possible output options would include the modem, RS-232 port, RAM, and cassette recorder. See the *OPEN* command in your *BASIC* reference manual to use those.

The output subroutines in *SWIM.BA* begin with the same routing statements. Lines 1400 to 1440 show an example. I strained my eight-bit brain creating those few lines. If you come up with something

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```
2Ø CLS:PRINT@5Ø,"Swim Meet Scoring":PRIN
T@132,"by Louis Self":PRINT@21Ø,"For the
 Tandy 2ØØ":PRINT@285,"Check scoring in
lines 3Ø-7Ø
3Ø 'DATA=Events,Places,Scoring,999=end
4Ø 'DATA 1,6,4,9,7,3,1, 7,54,3,5,3,1, 55
,6Ø,4,9,7,3,1,999:'Dual
5Ø 'DATA 1,6,6,14,1Ø,8,6,4,2, 7,54,6,7,5
,4,3,2,1, 55,6Ø,6,14,1Ø,8,6,4,2,999:'Div
ision
7Ø DATA 1,2,6,14,1Ø,8,6,4,2, 3,4,6,7,5,4
,3,2,1, 5,6,6,14,1Ø,8,6,4,2, 999:'Debug
data
8Ø MAXFILES=2:DEFINTA-B,D-S,U-Z:DIM P(6)
,R(8),S(6),T(8),N$(8):TM=2
1ØØ ONERRORGOTO6ØØØ:OPEN"MEET"FORINPUTAS
1:INPUT#1,M$,TM:FORT=1TOTM:INPUT#1,N$(T)
:NEXT:CLOSE
12Ø PRINT:PRINT"Input info or <ENTER> to
 keep the same:":PRINT:ONERRORGOTOØ:PRIN
T"Meet:   "M$:INPUTM$:PRINT"Number of tea
ms ="TM;:INPUTTM:PRINT"Lane   Team
14Ø FORT=1TOTM:PRINTT;N$(T):INPUTN$(T):N
EXT
16Ø OPEN"MEET"FOROUTPUTAS1:PRINT#1,M$","
TM:FORT=1TOTM:R(T)=T:PRINT#1,N$(T):NEXT:
CLOSE
18Ø OPEN"LCD:"FOROUTPUTAS1:PS=1:IFINP(18
7)=243THENOPEN"LPT:"FOROUTPUTAS2:PS=2:LP
RINT,M$
2ØØ CLS:F1=1:F2=PS:GOSUB 14ØØ:IFPS=1THEN
:PRINT" <<No printer on line>>":PRINT
23Ø F=PS:GOSUB 12ØØ
24Ø READEF:IFEF=999THENF1=1:F2=PS:GOSUB8
ØØ:GOTO5ØØØ
26Ø READEL,PM:FORX=1TOPM:READS(X):NEXT
28Ø FORE=EFTOEL
3ØØ   A$=INKEY$:IFA$=""THENGOTO3ØØ
32Ø     IFINSTR("Bb",A$)THENP=Ø:P(1)=Ø:P
RINTCHR$(27)"M";:GOTO3ØØ
34Ø     IFINSTR("Cc",A$)THENPRINT:PRINTC
HR$(27)"A"CHR$(27)"M";:INPUT"Correct tea
m LN#, Change";T,C:IFT<1ORT>TMTHENPRINTC
HR$(27)"A"CHR$(27);"K";:P=Ø:P(1)=Ø:BEEP:
GOTO3ØØ ELSET(T)=T(T)+C:F1=1:F2=PS:PRINT
CHR$(27)"A"CHR$(27)"M";:GOSUB13ØØ:P=Ø:P(
1)=Ø:GOTO3ØØ
36Ø     IFINSTR("Hh",A$)THENP=Ø:P(1)=Ø:F
=1:GOSUB12ØØ:GOTO3ØØ
38Ø     IFINSTR("Rr",A$)THENF1=1:F2=1:GO
SUB8ØØ:GOTO3ØØ
4ØØ      IFA$=CHR$(13)THENGOTO5ØØ
42Ø T=VAL(A$):IFT<1ORT>TMTHENBEEP:GOTO3Ø
Ø
44Ø P=P+1:IFP>PMTHENP=PM
46Ø P(P)=T:PRINTCHR$(27)"A"
48Ø PRINTCHR$(27)"p";:F1=1:F2=1:GOSUB6ØØ
49Ø PRINTCHR$(27)"K";CHR$(27)"q";:GOTO3Ø
Ø
499 '----Process event----
5ØØ FORX=ØTOP:T(P(X))=T(P(X))+S(X):NEXT:
PRINTCHR$(27)"K";:F1=1:F2=PS:GOSUB11ØØ:F
1=2:F2=2:GOSUB6ØØ:PRINTCHR$(27)"q":P=Ø:
REM--Put this before P=Ø  ;CHR$(27)"A"
51Ø NEXTE:F=PS:GOSUB12ØØ:GOTO24Ø
598 '---Subroutines---
599 '---PRINT Event Ranks---
6ØØ IFF2=2ANDPS=1THENRETURN ELSEFORF=F1T
OF2
6Ø4 IFF=2ANDP=ØTHENRETURN
6Ø6 IFF=2THENLPRINT"  ";
61Ø FORX=1TOP:A$=STR$(S(X)):PRINT#F," ";
RIGHT$(STR$(P(X)),1);"-";RIGHT$(STR$(X),
1);"=";RIGHT$(A$,LEN(A$)-1);:NEXT
62Ø NEXT:RETURN
799 '---Rank teams with indexed bubble s
ort---
8ØØ Y=Ø:FORT=1TOTM-1:IFT(R(T))<T(R(T+1))
THENY=1:R(Ø)=R(T):R(T)=R(T+1):R(T+1)=R(Ø
)
```

Continued

Listing 1. SWIM.BA. *Used for competitive swim meets, this program keeps track of teams, lane numbers, place finishes, and points scored.*

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better, let me know (but don't tell anyone else).

The first statement in line 1400 returns the program to the calling routine if you don't want output. Otherwise the *FOR-NEXT* loop determines where the output goes in line 1420. Line 1440 returns the program to the calling routine.

The program sends nothing to the printer if it is not ready because that would lock up the computer. The *INP(187)* back in line 180 changes *PS* from *1* to *2* if the printer is ready.

GIVE US A CALL

Two variables (*F1* and *F2*) need to be set by the calling routine. Here's what they mean:

- *F1=1:F2=1:* Output to the screen only
- *F1=1:F2=PS:* Output to both the screen and printer.
- *F1=PS:F2=PS:* Output to the printer if ready, otherwise the screen.
- *F1=2:F2=2:* Output to printer if ready, otherwise no output.

WHERE IT'S HAPPENING

Now take a look at the output subroutines:

- *SUB 600* is called by lines 480 and 500
- *SUB 800* is called by lines 240 and 380
- *SUB 1200* is called by lines 230 and 510

I deviated from my generic subroutine in lines 1200 to 1220. This subroutine sends different outputs to the screen and printer when called from lines 230 and 510 because *PS=2*. Output is sent only to the screen when called from line 360 because *F=1*.

Your assignment, if you should choose to accept it, is to develop a generic subroutine that includes the above option. As always, if you are unsuccessful, the secretary will disavow any knowledge of your program-modification attempts.

RUNNING THE PROGRAM

Now you see the lane headings on your screen and are ready to score the first event. To skip an event, simply press *ENTER*. Otherwise press the lane numbers in the order that the teams finish the event. You'll see groups of three numbers added to the screen (*7-1=10* means lane seven came in first and received 10 points).

Pressing *ENTER* processes the event and gives you the updated team totals to the nearest whole number.

The *BCHR/E*, seen on the screen to the left of the lane headings, are your other options:

```
815 :NEXT:IFY<>0THENGOTO800
899 '---Print sorted teams---
900 IFF2=2ANDPS=1THENRETURN ELSEFORF=F1T
OF2
920 PRINT#F,:PRINT#F,M$:PRINT#F,"P1 LN
 POINT   TEAM";:IFEF=999THENPRINT#F,"
 >>END OF MEET<<":ELSE PRINT#F,
940 FORX=1TOTM:PRINT#F,USING"## ##  ###.
##  \                    \";X;R(X);T(R
(X));N$(R(X)):NEXT:NEXT
960 RETURN
1099 '---Print Lane Totals---
1100 IFF2=2ANDPS=1THENRETURN ELSEFORF=F1
TOF2
1110 PRINT#F,:PRINT#F,USING"##";E;:PRINT
#F," Pt->";:FORT=1TOTM:PRINT#F,USING"###
#";T(T);:NEXT
1120 NEXT:RETURN
1199 '----Heading----
1200 PRINT:PRINTCHR$(27)"ABCHR/E"CHR$(27
)"p Tm>1";:FORX=2TOTM:PRINTUSING"   #";X
;:NEXT
1210 IFF=2THENLPRINT:LPRINTSTRING$(79,45
):LPRINT"Lane No.->1";:FORX=2TOTM:LPRINT
USING"   #";X;:NEXT:LPRINT"
Rank Finishes":LPRINTSTRING$(4*TM+47,45)
;
1220 PRINTCHR$(27)"q":RETURN
1299 '----Print corrected results----
1300 IFF2=2ANDPS=1THENRETURN ELSEFORF=F1
TOF2
1305 IFF=2THENLPRINT
1310 PRINT#F,"Team #"T"corrected by"C"gi
ving"T(T);:IFF=1THENPRINT
1320 NEXT:RETURN
1399 IFPS=2THENLPRINT:LPRINT,"<<<-remove
 this from line 1399->>> Final Scores, "
M$:'----Print totals & teams----
1400 IFF2=2ANDPS=1THENRETURN ELSEFORF=F1
TOF2
1420 PRINT#F,"# Pnt Team":FORT=1TOTM:PRI
NT#F,USING"# ### ";T;T(T);:PRINT#F,N$(T)
:NEXT:PRINT
1440 NEXT:RETURN
5000 GOTO5000
6000 PRINT:PRINT"       <<Creating new D
ATA file>>":RESUME 120
7000 NAME"meet.do"AS"meet8.do":RUN
7002 NAME"meet.do"AS"meet8.do"
7003 NAME"meet2.do"AS"meet.do":RUN
7008 NAME"meet.do"AS"meet2.do"
7009 NAME"meet8.do"AS"meet.do":RUN
```

End of listing.

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- *B* takes you *back* and allows you to to score this event again by canceling any team finishes you have entered thus far. You must use this before pressing *ENTER*.
- *C* allows you to *change* the score of any team. This is handy if you make a mistake (who'd do a thing like that?) or if you have a tie and need to split the score between two teams. Press *C2,-3.5* and then *ENTER* to *correct* team number 2 by -3.5 points (subtract 3.5 points from their score).
- *H* prints the lane *headings* on the screen if you want them after they have scrolled off.
- *R ranks* and lists the teams by place, lane number, total points (to two decimal places) and team name.
- */E* is a reminder to press *ENTER* at the end of each event

Your laptop takes care of the team totals and all the scoring, and it gives you a summary at the end of the meet.

CHANGE YOUR MIND AND YOUR MEET

Switching around between meets is easy with the 7000 utility

A$	*INKEY$*
C	correction & rank swap
E	event number
EF	event, first of block
EL	event, last of block
F	file (device) for output
F1 & F2	files set for output
H$	heading, lanes
M$	meet information
N$(1-8)	names of teams
P	place counter
P(1-6)	places, team finish order
PM	place, maximum for scoring block
PS	printer selected: 1=No, 2=Yes
R(1-8)	team's rank
S(1-6)	scores, places 1-6
T	team (lane) number
T(1-8)	total points for teams 1-8
TM	teams in meet
X & Y	place and general counter
Y	change in bubble sort? yes=1

Figure 1. The variables used in program SWIM.BA.

lines. You can easily have two different *MEET.DO* files available in RAM. I use this feature to jump between two-team and eight-team meets.

Run *SWIM.BA* the normal way to set up your eight-team version of *MEET.DO*. When you see the first lane headings, press *BREAK* and type *RUN 7000* to set up the two-team version. Now *RUN 7008* to go to the eight-team version from the two-team version and *RUN 7002* to go to the two-team version from the eight-team version.

MODEL 100 AND TANDY 102 USERS

The only change needed is in the check to see if the printer is on line and ready. In line 180, change the *IF INP(187)=234 THEN* to *IF INP(187)=194 OR INP(187)=195 THEN*.

Also, to keep some of your data from scrolling off the screen, you might want to eliminate the isolated *PRINT* statements. I recommend that you test the program after you remove each one, or the screen control characters may cover up some information. In ranking large meets with eight teams, it is handy to press *PAUSE* before the first-place team scrolls off the top of your eight-line screen.

Now you know about the program and how to use it, so it's time to go to a swim meet, give them a hand with scoring, and make a big splash with your portable computer.

Louis Self teaches physical science for Paradise Valley School District in Phoenix and has been using microcomputers almost since their debut. He is a certified flight instructor and enjoys running, technology, music, and photography. His CompuServe ID is 74076,1273. GO M100SIG to leave him a message.

Editor's note: *Time constraints prevented us from testing* SWIM.BA. *It's very portably written and should work well on non-Tandy computers, with the possible exception of the* INP *statement in line 180. If the given values won't work with your non-Tandy computer, you can get around them by rewriting that portion of code to query the user—rather than read a port—to determine the printer's status.*

NEC users should change each occurrence of PRINT@ *to a* LOCATE *statement followed by a* PRINT *statement. Use the form* LOCATE p MOD 40, p\40: PRINT *(where* p = *the* PRINT@ *location). Note that the backslash is used for integer division. For example, in line 20 change* PRINT@50, "Swim Meet ..." *to* LOCATE 50 MOD 40, 50\40: PRINT "Swim Meet ..."

-MN

The Aprotek Minimodem-T: Save Money and Your Battery

This internal modem costs less than Tandy's and has an easy ON/OFF switch to help you conserve battery power.

By Terry Kepner

The biggest problem I have with internal modems for portable computers is knowing when they're on or off. I once spent an hour cursing my computer and it's modem for failing when I urgently needed to *quickly* go onto Compuserve and download a file, only to discover that the communication setting in the Tandy 1400LT Set-up Menu was set to RS-232! This, of course, meant the modem wasn't receiving power. Conversely, another time I noticed that my 1400LT wasn't getting much battery life, until I thought to check the Set-up Menu, where, sure enough, the modem was selected as active. Like most people, when I work late at night, I don't always remember to turn things off, and the next day I don't always think to check everything I used the previous night.

The Aprotek Minimodem removes all doubt: It has an ON/OFF switch right beside the two phone line receptacles. Convenient and accessible. And necessary.

So far, in reviewing modems for the 1400LT, all except the official Tandy modem have a problem dealing with the method used by Tandy to control the modem's ON/OFF status: They don't really turn off. Even though the RS-232 port is selected at the Set-up Menu, if you have the phone lines plugged in and a call comes in for you (say your wife calling to tell you her mother is coming to visit this weekend) the Minimodem-T lets the phone ring once, then picks up the line! If you don't happen to be in the room at the time and miss that initial ring, your wife gets a dead line and you don't get the message (maybe not such a bad idea...). If you happen to be working right there, you can pick it up and start talking. The only problem is that the modem puts a lot of static on the line and makes it hard for the other person to hear you (handy if you want to convince someone you're calling long distance, though).

However, simply flicking the switch completely powers off the modem. If you happen to answer the phone first, the noise simply disappears, it doesn't disconnect you. If not, then the modem won't bother the line at all. Plus, you know that battery power won't be wasted (I still don't trust the Tandy modem to *really* not use power when in the RS-232 mode).

The Aprotek Minimodem-T removes all doubt

This is better, I think, than another modem I saw that simply held the phone line down so that all callers got a busy signal (you didn't even get one ring out of it). It couldn't be turned off by the Setup menu. The only solution was to unplug the phone lines from the modem. Unfortunately, this other modem also continuously pulled power, draining the batteries much faster than normal. To stop this required removing the modem from the computer. Not convenient.

Outside of this one problem, and convenient solution, the Minimodem-T is trouble-free. It installs easily in less than 60 seconds in the modem slot of the 1400LT. Anyone considering purchasing the 1400FD or 1400HD will be relieved to hear that Tandy Fort Worth has assured

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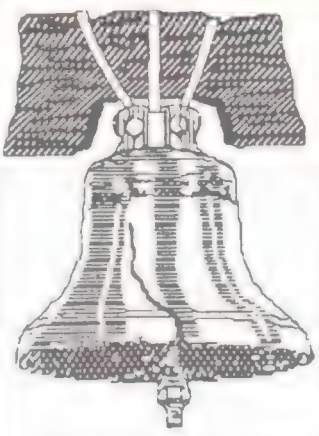

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us that the new 1400FD and 1400HD computers use virtually the same modem slot, so there shouldn't be any problems using this modem with them). You remove a screw, slide in the modem, replace the screw, and that's it!

For those that like to play around with their equipment, or might have special requirements, the Minimodem-T includes an eight-switch control block that lets you:

- SW1-set Data Terminal Ready either high or low;
- SW2-set Carrier Detect either high or low;
- SW3-select either a 40/60 rotary dialing ratio with Bell standard 103 and 212A modes or the European 33/67 dialing ratios and CCITT V.22 and V.21 modes;
- SW4-Enable or disable Auto-answer;
- SW5-enable or disable automatic echoing of characters typed (only if in half-duplex and on-line);
- SW6-enables or disables display of modem response to direct commands;
- SW7-enables or disables result codes to display as words; and
- SW8-lets you use the Minimodem-T with the older mechanical Key phone systems.

Naturally, those Hayes commands that control things like auto-answer, character echo, and so forth, can be used to override the switch settings at any time, so convenience is maintained.

The manual that comes with the Minimodem-T is short, just a twelve page 6x9-inch booklet. While it may not seem like much, it includes complete instructions on the Hayes enhanced command set (very valuable and not always included with other modems) and complete installation instructions (including how to get to the 1400LT Set-up Menu).

Using the modem is as simple as the manual: Turn on the modem switch, select the modem from the 1400 Set-up Menu, load your software, and go to work. Nothing complicated. By giving the *LOCAL* command in your software you can talk directly to your modem with the HAYES command *AT*. Speaker isn't loud enough? Type *ATL3*. Don't want to listen to the modem dialing? Type *ATM0*. You can type these commands in either uppercase or lowercase, both work well.

Using the modem is as simple as the manual

SOFTWARE

The Minimodem-T doesn't include software, in the belief that most people have access to public domain software from friends. This makes it easier for Aprotek (no software licensing required, no bookwork, no extra expenses included in your purchase price). It also makes it easier for you: You don't end up paying for something you don't need (I can't tell you how many copies of *MIRROR* and *SMARTCOM* I have laying about, at least one for every desktop or laptop with a modem).

For those of you who have no friends (with public domain software, that is), Aprotek will sell a copy of *ProComm* for only $15.95. *ProComm* is an actively supported and distributed communications program, more than adequate for a first-time modem user.

SUMMARY

The Aprotek Minimodem-T is a nice, solid piece of work. With a list price of just $119.95, it underprices the Tandy modem by a considerable margin.

Spending the bucks for a 2400 baud modem isn't always a good idea: while the intent is to save money with online charges by dumping data faster, the truth is that many phone lines are so noisy that the modem slows down to 1200 baud anyway to insure data integrity.

Aprotek has been building modems for several years and provides a two-year parts and labor warranty (much longer that Tandy does). I don't believe you can beat the bargain offered in the Minimodem-T.

Transfer Files with *TRANS-IT*

Put your Tandy in the driver's seat.

by George Sherman

Maybe you're a writer and use your Model 100 for moments of inspiration, jotting down notes and roughing out first drafts whenever the muse tickles you—in a McDonald's, at the beach, in the shade of your favorite maple. Maybe you use your Model 100 for scheduling, arranging the next month's itinerary as you make appointments and remember important dates. But if you do your big computing jobs with your RAM-eating word- or number-crunching programs on your IBM PC-compatible, you'll want to transfer those notes and appointments to the PC so you can use your *WordPerfect* or *Lotus Agenda*.

But without compatible disk drives, PC-compatibles and notebook computers—which include the Model 100, Tandy 102, 200, 600, NEC PC-8201A and 8300, and others—do not communicate easily. Unless you have *TRANS-IT*, from Selective Software.

TRANS-IT makes transferring files between these two machines a snap.

While I tried out *TRANS-IT*, I used the following setup: a 1400LT as the PC connected to a Model 100 as the notebook with a 6-foot shielded RS-232C cable (Tandy catalog number 26-269) and a null modem adapter (Tandy catalog number 26-1496). I do not own, and therefore have no way of evaluating, *TRANS-IT* on the other notebooks mentioned.

You can order *TRANS-IT* using either a 5.25-inch or 3.5-inch floppy, depending on your requirements. My evaluation package came equipped with both kinds of floppies. But since the 1400 doesn't come with a 5.25-inch drive, I ran my tests with the 3.5-inch drives of the 1400LT.

The most remarkable thing about *TRANS-IT* is that once it is up and running, the keyboard of the notebook becomes in effect the keyboard of the PC and you give all commands, even MS-DOS commands, from the notebook. For example, at one point, I wanted to review the directory of the disk in my 1400LT. On the Model 100, I typed *DIR*, pressed *ENTER*, and the directory of the 3.5-inch floppy in the 1400LT scrolled up my Model 100's screen!

GETTING STARTED

The first and best thing you can do with a new piece of software, of course, is to read the instructions. The task in this case is as easy to do as using the program. The instructions cover only three small pages and are about as basic as you can get, though they don't cover everything.

To get started using the program, first connect the PC to the notebook through their RS-232 ports, a simple operation. Use either a full null modem cable or a null modem adapter (to make a null modem cable, see David Rowell's article in Sept. '88, p. 19, and his follow-up letter in Feb. '89, p. 4). You can buy a null modem cable ($12.50) from Selective Software if you wish. Second, go to *TELCOM* on the notebook and set the stats to *68N1E*. And last, go into terminal mode on your notebook (press *F4* on the Model 100).

As for the PC end of the connection, first boot up the PC normally; then insert the *TRANS-IT* disk, type *GO*, and press *ENTER*. You'll see on the PC screen, in the upper left, the word *INITIALIZING* surrounded by a flashing border. A few seconds later the main screen of *TRANS-IT* comes up. At this point you can exit the program if you wish. The main screen shows the connection criteria again (in case you missed them in the instructions), and it asks which *COM* port you are using, either 1 or 2. It also reminds you of two other programs on the *TRANS-IT* disk, *ADD.EXE* and *OMIT.EXE*. The screen seems to indicate that these are available to you at this point. However, the instructions carry a warning that "*TRANS-IT* SHOULD NOT be active when running these two programs." I'll get back to them later. As soon as you choose the *COM* port connected with the notebook, the PC screen clears except for the notation *Laptop now has control*. And wonder of wonders, the MS-DOS prompt, which normally appears on the PC screen, suddenly appears on the notebook screen.

A REMOTE CONTROL PILOT

At this point I had forgotten which file I'd wanted to download from the 1400LT. I was wishing for some way to call up the directory of the 1400's disk without leaving the program, but the instructions make no mention of how to do this. So I thought if the 1400 would respond to MS-DOS commands from the notebook keyboard, why not have a go at it? I typed *DIR* on the notebook's keyboard and pressed *ENTER*. There the directory was, scrolling rapidly past my eyes. Next I tried *DIR/W* but got nowhere. Then I had an inspiration and acted on it. I typed the command *DIR* but did not press *ENTER*. I opened the buffer on the notebook with *F2* (*Down*) and named the file to download as *DIR* and pressed *ENTER* twice. EUREKA! When I pressed *F8* on my Model 100 to disconnect from the 1400, and pressed it again to go to the Model 100's menu, there was my new file, *DIR.DO*, containing the 1400's directory.

While I am on this subject, I would like to see, for future enhancements, if possible, the ability to display the PC's disk directory on the PC's screen rather than on the notebook's because of its limited memory.

TRANSFERRING FILES

To transfer a file from the PC disk to the notebook, just remember how you normally *download* a file from CompuServe or other bulletin board service (BBS). Start with the PC's MS-DOS command. On the notebook, type *TYPE file-*

ROMBO

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Connect two disk drives to this device, add your computer and you have access to files on both (Any DOS but FLOPPY will work).

Open two files at once, one on each drive. Copy files from drive to drive, backup disks with a single keystroke, or develop your own "larger than RAM" text editng program.

Software included to make backups, autoformat, or copy selected files between drives.

Hand assembled and tested, interface includes all cables and an AC power supply. Can also be operated on external battery.

$179.95 + $5.00 s&h
90-day warranty
(disk drives not included)

Tony Anderson
P.O. Box 60925
Reno, NV 89506

Circle 143 on reader service card.

name, where *filename* is the name of the PC's file you want to transfer, but **do not** press *ENTER* yet. Now, if you have a Model 100/102 or Tandy 200, press *F2* (*Down*), or the equivalent key on your notebook model, and name the file for storage in your notebook. At this point press *ENTER* twice. The first *ENTER* opens the capture file in your notebook; the second starts the transfer from the PC. As when downloading from CompuServe or a BBS, you'll see the file scroll up your screen until it reaches the end. Press *F2* again to close the capture file. Disconnect using *F8*, again if you have the Model 100/102 or Tandy 200, and press *F8* once more to return to the menu. You should now see your transferred file. When you return to *TELCOM* again, the PC's prompt may not be there. Just press *ENTER*, and it returns.

The reverse of the above procedure, that is, *uploading* a file from the notebook to the PC, is just as simple if you remember that you are running the PC from the notebook. First type *COPY COM1: filename*, being sure to leave a space between the colon and the filename. Next, using the appropriate function key—*F3* on the Model 100/102 or Tandy 200—open the upload file on the notebook. Type in the name of the file to be uploaded, and press *ENTER* twice. After the file has uploaded to the PC, you must remember one more MS-DOS command: Type *CTRL-Z* by holding down the *CTRL* key on the notebook and typing a *Z*. This tells the PC that it's reached the end of the file and can quit receiving it.

Finally, to stop *TRANS-IT* and return control of the PC to its own keyboard, type *S* on the notebook and press *ENTER*. Caution: This last command works only when the *TRANS-IT* disk is in the PC's disk drive.

The instructions do not specifically address this, but I could get only ASCII (*.DO*) files to transfer. [*See editor's note.*]

TWO BONUS PROGRAMS

Use the other two programs I previously mentioned, *ADD.EXE* and *OMIT.EXE*, simply to add or omit linefeeds from a file as needed. But you can use them only on a file that resides on the PC disk, and you can't run them while *TRANS-IT* is active. You access them by typing either *ADD* or *OMIT* on the PC keyboard at the regular MS-DOS prompt. They will ask which file to use, and when you are finished they will ask if you wish to do another file. NO is the default at this point. That is, just pressing *ENTER* is the same as typing *NO*.

Manufacturer's Specifications

TRANS-IT—$39.95
For transfer of files between an IBM PC-compatible and a notebook computer (Model 100, Tandy 102, 200, 600, NEC PC-8201A, NEC PC-8300, or others)
Requires a null modem cable or null modem adapter to connect PC-compatible and notebook serial ports.
Comes on 5.25-inch or 3.5-inch MS-DOS disk

Selective Software Co.
P. O. Box 91723
East Point, GA 30344
(404)473-6425

All in all, the program is easy to use, operates quickly, and at $39.95 is comparatively inexpensive (other commercial transfer programs generally cost around $130 and up). If you need to transfer files between your PC and your notebook, *TRANS-IT* may very well be a piece of software you can't live without.

BY GEORGE!

George Sherman was born in Worcester, MA. He is a Korean War vet (5 years, in the Air Force), and graduated from Baylor University (Waco, TX) in 1955. He is a retired Civil Service employee and a grandfather of eleven. His first computer was a little pocket PC-1. He is active on CompuServe's M100SIG with several reviews and other uploads there, approaching the computer from the user's point of view rather than the programmer's. He currently lives in Ponca City, OK.

Editor's note: *TRANS-IT transfers .BA and .CO files if you first convert them to ASCII (.DO) form. Here's how:*

For a .BA file, enter BASIC *and load the file (e.g., type* LOAD "MYFILE.BA" *and press* ENTER*). Then type* SAVE "MYFILE",A *and press* ENTER*. Finally, press* F8 *to return to the main menu, where you'll find* MYFILE.DO*, an ASCII version of* MYFILE.BA*, which you can now transfer with* TRANS-IT*.*

Later, when you transfer MYFILE.DO *back into the notebook computer, you can convert it back to a .BA file: Enter* BASIC*, type* LOAD "MYFILE" *and press* ENTER*. After the program loads into* BASIC*, the* Ok *prompt returns. Type* SAVE "MYFILE" *and press* ENTER*; then press* F8 *to return to the main menu. You'll now see* MYFILE.BA *on the menu, and you can kill* MYFILE.DO*.*

For .CO files, you can use a utility program that converts .CO files to .DO form and vice versa. One such program, CHANGE.BA*, can be downloaded from CompuServe, GEnie, or the* Portable BBS*, and is also available on the October 1988* P100-To-Go *disk.*

-MN

Triple Speed Cassette Utility for Tandy 100 and 200

If you've ever run out of RAM for your files when traveling or lacking a disk drive, yet couldn't stand the snail's pace of cassette loads and saves, then *FAST* is for you.

FAST loads and saves *.DO* files at up to three times normal cassette speed, and it verifies saves. It can also save all *.DO* files in memory as a single file and later restore them to RAM, and it can help recover lost files after a cold start. Its *Search* mode identifies the files on a cassette to aid in cataloging your piles of unmarked cassettes.

Occupying very little RAM—860 bytes to save and 2K to load—*FAST* stores 500K of files on one inexpensive C-60 cassette. Since *.BA* files can easily be saved in *.DO* form, and available public-domain programs can convert *.CO* files to *.DO* form, *FAST* can save all your files quickly.

A bonus *File Manager* program (included) displays all *.DO* files in memory and lets you rename or kill any file with just three keystrokes.

FAST, by Minsof, Inc., is available on cassette with instruction manual and bonus *File Manager* for $11.95 postpaid. (Please specify Model 100/102 or Tandy 200 when ordering). For further information, contact Mel Zwillenberg, 475 Richmond Avenue, Maplewood NJ 07040. *Or circle #61 on your Reader Service Card.*

Easy Laptop to MS-DOS Computer Connection

Club 100 announces *The Portable Communicator* (*PORTCOMM*), a Model 100/102/200-to-desktop file transfer utility. *PORTCOMM* lets your laptop use an MS-DOS computer's disk drives as its own by emulating a Tandy/Brother portable disk drive. Connect your laptop to the desktop via null modem cable and use any laptop DOS (e.g., *FLOPPY*, *TS-DOS*, *DSKMGR*, *PowrDOS*, *Disk Power*, etc.). Once operational, you have a completely menu-driven environment. You can print and read documentation, run the *PORTCOMM* connection, install *PORTCOMM* onto a hard disk, and access laptop-specific information and programs (included).

PORTCOMM is obvious to use. Function keys let you delete and rename files easily, change the drive, path or COM port, and transfer *PowrDOS* (included) directly into the laptop. Then *PowrDOS*, when run, automatically sets the date, day, and time of the laptop to that of the desktop, making it a snap to set up a cold-started laptop.

The *PORTCOMM* distribution disk is controlled by the *Automenu 4.5* shareware program—all files included at no extra cost. You'll also find *VIEW*, a commercial text file viewing program conceived and owned by Hanson Information Services, and a collection of public domain programs and other information from Club 100, the world's largest Model 100/102/200 organization.

The *Portable Communicator* comes ready to use for $34.95 plus $2.00 shipping (California residents add 7% sales tax). A null-modem cable is also available for $12.50. For further information, contact Richard Hanson, Club 100 (A Model 100 User Group), P.O. Box 23438, Pleasant Hill, CA 94523 (415)932-8856 (voice) or (415)939-1246 (BBS). *Or circle #62 on your Reader Service Card.*

Durable Bar Code Reader for Your Portable

The *LDS-1000*, from Optical Data Systems, Inc., is a hand-held infrared bar code scanner that uses advanced solid-state Laser-Diode technology. The seven-ounce low-power scanner plugs into the BCR port on many popular laptop computers (including Tandy, NEC, Kyocera, Epson, and Olivetti). It reads all the major bar codes: UPC, Code 3 of 9, Interleaved 2 of 5, EAN, and CodaBar. The LDS-1000 reads bar codes from a distance of between 0.1 inch to 8 inches away, on flat, curved, or irregular surfaces. It reads through thick laminations, film, glass, clear plastics, light oil, grease, alcohol, and dye-based inks. The LDS-1000 is durable and uses less power than many wands.

Two versions of the LDS-1000 are available: one designed for reading dot-matrix-printed or average bar codes and the other for more demanding high-resolution applications. It comes with a 12-month warranty. Price is $395 in small quantities. For further information, contact Optical Data Systems, Inc., P.O. Box 1987, Escondido, CA 92025 (619)745-6563. *Or circle #64 on your Reader Service Card.*

The *LS-1000* is durable and versatile.

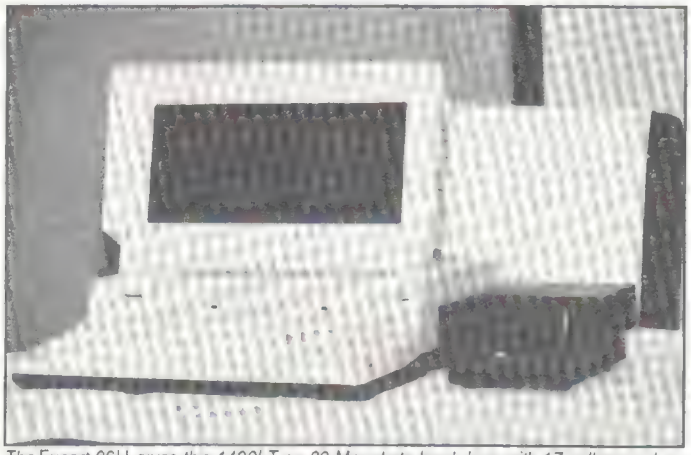
RBASIC Upgrade from King Computer Services

King Computer Services, Inc., has upgraded their *RBASIC* program, which converts Tandy Model 100/102 *BASIC* programs to run from an option ROM. This new release, Version 3.31, reduces the size of compiled code that uses error and interrupt logic, allowing larger programs to fit on the same size chip.

King has also improved the size of error and interrupt code and in the *CALL* verb, the handling of *MOTOR*, *READ*, and *RUN* commands, and has added support for the *SCREEN* verb and *HIMEM*, and a new specialized *MERGE* verb that allows assembly-language code to be included directly in the original source code file.

Price of *RBASIC v3.31* is $200.00; current users may upgrade for $50.00. For further information, contact King Computer Services, Inc., 1016 North New Hampshire, Los Angeles, CA 90029 (213)661-2063. *Or circle #66 on your Reader Service Card.*

Two External Hard Disk Drives for Laptops



The Export 86H gives this 1400LT an 80-Megabyte hard drive with 17-millisecond response time.

Systems Peripherals Consultants now sells two series of external Winchester hard disk drives, the *Export* series and *LHD* series. Each is available in 20, 30, 40 & 80 megabyte sizes.

You can share both series with your desktop XT/AT computer, and they will work with the Tandy 1400LT, Toshiba 1100, 1200, 3100, IBM Convertible, Zenith Z-171, and PCjr.

The Export series uses a *docking station* and *cartridge* so that you can plug individual drive cartridges into your docking station, permitting replacement of hard drives similar to replacement of floppy disks. The LHD series comes in one external unit. However, it also has a *Remedy* option, which permits removal of the disk as with the Export series. You can easily plug both drives into your laptop or desktop, making large-scale data storage quickly transportable, and increasing data security and multi-user convenience. A complete computer failure will not tie up your data on a specific machine. The Export series offers an optional battery pack, which carries a four-hour charge.

Carrying cases and power supplies are also available. SPC warrants all products against defects for one year. Additional adapter cards and other hardware may be required.

Prices range from $695.00 (LHD 20H) to $1,995.00 (Export 86H). Save $100 to $300 with the quick-response discount, available for a limited time. For further information, contact Systems Peripherals Consultants, 7950 Silverton Avenue, #107, San Diego, CA 92126 (800)345-0824 or in California (619)693-8611. *Or circle #65 on your Reader Service Card.*

Keep It Confidential

Attention all business people and professionals! You could be losing money and exposing yourself to damaging lawsuits if you transmit sensitive information unprotected over the telephone or store data that can be retrieved by unauthorized persons. Espionage is a fast-growing multi-billion dollar industry, and no one is immune. If you are a victim, you may not know it until it is too late!

Cryptek, the specialists in encryption software, have introduced *Lilith*, a maximum-strength cipher employing the latest encryption techniques. Ideal for laptop computers, it protects your communications and stored data from anyone!

Although it is one of the strongest ciphers in use (more secure than DES), *Lilith* is highly compact and can run on the smallest computer. Currently implemented on the Model 100 and written in *BASIC*, it can easily be ported to other computers or translated into other programming languages.

Lilith is peace of mind. New low price is $79.95 per copy (California residents add 7% sales tax). For further information, contact Cryptek, 808 Post Street, Suite 915, San Francisco CA 94109 (415)441-1672. *Or circle #60 on your Reader Service Card.*

CRDFIL Heads EPROM-Based Software Series

Tony Anderson, an independent programmer for the Tandy/Radio Shack portable computers, has released his first in a planned series of EPROM-based software for the Model 100/102 and Tandy 200. *CRDFIL.ROM*, a card file database system, is the first new major software release on EPROM in over two years.

You can plug EPROM's directly into the option ROM socket on the portable computers, or install them in an external expansion device (e.g, Traveling Software's Booster Pak, PG Design's SAFE ROM Bank, PCSG's 6-ROM Bank, etc.). Once installed, the programs function exactly like the computer's built-in programs (*BASIC*, *TEXT*, *TELCOM*, etc.).

CRDFIL lets you custom design small databases easily, based on the card file concept, where each screen is a "card" created according to customized templates. The menu-operated program allows changing, adding to, or deleting from existing files, new files, or templates, plus printing mailing labels and other selected cards and lists. Extremely flexible, *CRDFIL* also allows sorting and recording of data for statistical reports. It performs true alphanumeric sorting or your choice of two other sort formats. The manual is 66-pages.

CRDFIL.ROM is available in two forms: a standard-pin EPROM, for installation in one of the external storage devices, at $59.95 postpaid; or mounted on a translator board to fit the non-standard Molex socket in the Tandy computers, at $74.95 postpaid. For further information, contact Tony Anderson, P.O. Box 60925, Reno, NV 89506. *Or circle #63 on your Reader Service Card.*

DEFUSR appears monthly to answer your questions about Tandy notebook computers.

Send your queries to: DEFUSR, PORTABLE 100, P.O. Box 428, Peterborough, NH 03458-0428. Please enclose a stamped, self-addressed envelope for our reply.

SEEKS D/VI BBS

I'm looking for a bulletin board system (BBS) program written for the Model 100 and the Disk/Video Interface (D/VI). Admittedly, the Model 100, even with the D/VI, doesn't have much capacity for a BBS, but I just want to set up a private BBS for relatives and friends. The Model 100 and D/VI would work very well for such purposes.

One way in which I'd like to customize such a BBS would be to wire it so that the D/VI power is off until a telephone ring is detected. There's no need to keep the D/VI on, with its fan pumping dust-laden air through it, unless it is needed.

John S. Neufeldt
Tucson, AZ

I don't know of an available BBS program written specifically to work with the D/VI, but if one exists, perhaps a fellow reader will write to let us know.

Meanwhile, I suggest you log onto the South Atlanta Mini-Board (SAMBo). Around since 1984, it's is a free BBS running 24 hours a day on a Model 100, using the internal modem and a D/VI. TELCOM *stats are* 8N1E *(300 baud, 8-bit word, one stop bit, no parity, XON/XOFF enabled); and the phone number is (404) 473-6426.*

SAMBo belongs to Richard Logan, who wrote the BBS software for SAMBo and can offer technical advice on getting your own BBS going. He also wrote TRANS-IT, *the file transfer software advertised and reviewed in this issue.*

Another part of your solution might be an "on-demand" modem that supplies power to whatever's plugged into it when the phone rings. This type of modem is available from various specialty companies. One such company is Black Box, Box 12800, Pittsburgh, PA 15421. Happy SYSOP'ing, John!

-MN

D/VI-CHIPMUNK CONFLICT

My Model 100 computer has the *Super ROM* from PCSG and the Chipmunk disk drive. How can I install the Radio Shack Disk/Video Interface? Do I need a ROM switcher?

Denman Shaw, Ph.D., M.D.
Chicago, IL

Both the Chipmunk and the D/VI use the 40-pin system bus connector in your computer's expansion compartment. We know of no device that lets you connect both simultaneously. You'd have to disconnect the Chipmunk and its operating software in order to use the D/VI, and then disconnect the D/VI and its operating software (which may require a cold start) in order to reconnect the Chipmunk. That could become pretty tedious after a while. With luck, some savvy reader might have a better solution.

-MN

EMBED.600 SOLUTION

Last November I sought your advice on how to embed printer commands of the type *27,xx* in the *Word* application of the Tandy 600.

"Success at last!"

Mike Nugent kindly responded in the January 1989 issue, but none of his several suggestions worked for me. Other approaches have been published in the magazine before and since then, but none of them lent themselves to my Tandy 600 plus DMP-130 without *BASIC* ROM chip. And Tandy Home Computers Tech. Service in Dallas, after several days of laboratory research, responded that it could not be done without a *BASIC* ROM chip.

Still, the thought lingered that there had to be a way, and I write to report "Success at last!" Larry Lavins' "Embedded Printer Commands" (April 1989) led me to the solution. The trick that had defied execution is, of course, to send a code 27 without touching the *ESC* key, which would take one out of the editing mode.

A little study of the printer manual showed that the only way to send a code 155 (27 + 128) that the printer will read as *ESC* is to use the IBM character set 1. However, in order for the printer to print the same characters as appear on the screen, it is necessary to set the DIP switches for IBM character set 2. (With the Model 100 they had to be set to Tandy mode.) Anyway, by changing switch 1-7, IBM character set 1 is selected.

Now *ESC* can be sent by entering *SHIFT-ALT-4* (code 155), which looks on the screen like a cents symbol (¢). It's now possible to underline, bold-face, etc., but—alas!—no longer possible to print umlaut, French accents or any other characters that are not available in IBM character set 1. The cure is to send a code 155,54 to select IBM character set 2 whenever those special characters are needed; at which point, naturally, the ability to underline, etc., is lost until one returns to IBM character set 1. This is accomplished by turning off the printer power.

Walter Schleyer
Swarthmore, PA

OOPS!

In the April 1989 DEFUSR Robert Kizer shared his method of adding linefeeds to carriage returns in printer and TELCOM *output by using* POKE *statements from* BASIC. *The* TELCOM POKE's *work fine.*

The printer POKE's—*well—they work for Robert, but not for the rest of us. That's because, tucked away in some unused RAM where the computer stores the* F8 *key's text, his computer has a small machine language utility that adds linefeeds to printer output. His* POKE's *force the ROM printer routine to detour through that utility.*

Such a utility is created by a BASIC *installer program. He installed it so long ago he forgot it was there and can't recall the name of the program or it's source. (Probably an old issue of* Portable 100, *a BBS or on-line service.)*

Anyway, without that utility in place, the printer POKE's *might cause a cold start. So don't use 'em! Instead, there are linefeed utilities on the* Portable BBS, *or for an SASE, we'll mail you a program listing for a Model 100/102 or Tandy 200 (please specify). Or check GEnie and CompuServe for similar programs.*

Again, the TELCOM POKE's *are safe, and I've found the NEC equivalents:* POKE 62469,1 *turns linefeeds on, and* POKE 62469,0 *turns them off.*

-MN

COMPATIBILITY: All notebook computers (with some variations)

Get the Most from TEXT

Part 1.

The Model 100 was first referred to as a "Micro Executive Work Station," or MEWS. Despite all the bad jokes this acronym inspired, the name was a good summary of the design philosophy behind the Model 100 and its in-ROM software.

Photos in early ads showed young executives earnestly using their MEWS in the office, at home, and on aircraft. The message was clear: the Model 100 was as adaptable as a computer could be. And the purpose of this adaptability was to facilitate the organization, analysis, and communication of facts and ideas. It was, and is, a brilliant concept and an outstanding example of excellent system design.

At the same time, the elegance and simplicity of the M100 can be hard on users accustomed to less well-integrated systems. It is important to understand that the MEWS is part of a system: user, computer, and peripherals. The nature of the system and the way it is best used changes whenever any component changes.

TEXT

Adaptability and elegance are most evident in the *TEXT* program. This built-in software supports storage of characters (letters, numbers, tabs, spaces, and a host of symbols) organized in files that can serve as:

- Documents printed on paper
- Messages displayed on the LCD
- Messages sent electronically
- Data to be read by a program (including *ADDRS* and *SCHEDL*, as well as by programs stored in RAM)
- Source code in *BASIC*, assembly, and other languages

This was quite a challenge! The problem was solved with a text editor flexible enough to meet the requirements, yet simple enough to fit into very limited ROM. Trade-offs had to be made that affected user convenience. To get the requisite features in a small, light, battery-operated computer, the engineers had to rely on the user to put in a bit of mental effort up front. This expectation accounts both for the success of the Model 100 and for some well-known problems in using *TEXT*.

You can think of the result as a set of limitations, or as simple features to be worked with. In particular, many users are challenged by the 40-column screen, the automatic word wrap, and the absence of output formatting controls (such as page margins) within *TEXT*. There are, fortunately, many ways to deal effectively with these characteristics to produce common kinds of documents with a minimum of trouble.

The best way to use *TEXT* depends on your applications and on your printer features. It takes a little planning and some tricks to get the Model 100 to produce output printed in a particular format using *TEXT* alone. The LCD screen is not capable of giving you the popular WYSIWYG ("What You See Is What You Get") style of presentation. To cope with this, you must develop strategies that support your personal way of working.

First and foremost, you have to know what you want. If you are going to rely on *TEXT*, you must make all the formatting decisions that control the final appearance of your work on the page. It will be easier to do this if you:

- *Type your text first, before you format it.* In other words, make sure it says what you want it to say, do all your editing and spell-checking, and *then* go about the business of putting in margins, underscoring, and so on. This can save you from having to undo a lot of work because you discovered a key paragraph had to be rewritten AFTER you had done the formatting.
- *Use standard formats as much as possible.* Strive to set up all your letters the same way; check standard references for conventions of form and usage. Have the same margins, headers, footers, and page number locations in all your reports. This saves time, gives your work a personal "style" and makes it possible to have the computer do most of the mechanical tasks of formatting. Go for a "clean and open" look—plenty of white space, minimal visual distractions, and thoughtful use of features to direct the eye (capitals, indentation, bullets).
- *Don't be afraid to work out your words and your layout on paper first!*

```
REMINDER OF UPCOMING UNITED WAY DRIVE
Would you like to be able to fight
hunger and disease here in
Califlorachusetts next year--without
raising taxes? Well, your chance is
coming: the 199Ø United Way Drive!
IMPORTANCE OF:
  PRIVATE SECTOR REPLACES GOVT SUPPORT
As you are surely aware, we can no
longer rely on government to solve the
major challenges of our time. It is up
to each of us, as citizens, to take
action and to support agencies which
address the needs that hundreds of
thousands of our neighbors can no longer
afford to solve on their own.

  (And so on.)
```

An example of a business letter format using a topical outline (in capital letters) to help organize your paragraphs on a notebook computer.

Think of the computer and the printer as a system. Take advantage of the routines in the PRINTER'S read-only memory as readily as you take advantage of the M100's firmware (ROM). Many printers can be instructed to handle margins, justification,

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FULL POWER

centering, and page breaks. Several articles here in the last few months have addressed this, and your printer manual is worth careful reading. See Beverly Howard's fine article in the May '89 issue for instructions in the art of direct print formatting. (Hey Nuge, warm up the Xerox machine! Here come the back-issue orders!)

Finally, the Model 100 has a number of features to ease your typing and editing. For example, the *CTRL*-key combinations shown in the owner's manual can speed your work by keeping your hands in "home position" (reaching for the function keys is a real time waster if you touch type).

Think about the various kinds of common business documents, and you'll see that they fall into five categories. You can use the shared characteristics in these groups to your advantage.

- Letters and memos are usually only one or two pages long and use conventional formats. They don't normally require headers, footers, or page numbers. Headings, letterheads, and the ubiquitous "To:/From:/Subj:" structure have few variations and stay the same for all documents of similar type that you produce.
- Forms vary widely in structure and features, but each form is the same every time. Use of *NOTE.DO* files and *SCHEDL* to produce these was discussed at length in the first "FULL POWER" column ("Not for Beginners Only"). The biggest challenge is keeping tabular data lined up.
- Labels are a subspecies of forms. You may want mailing labels, file folder tags, diskette labels, or whatever, but the biggest problem is that the label is never big enough!
- Diagrams and graphs are extremely useful in business reports. With a full-size desktop machine you can produce phenomenal graphics, but the boss will understand simple charts produced on the M100 just as readily, and may even appreciate them more.
- Reports and articles may be only a single page, or they may be many chapters in length. Each one will have a structure determined by its purpose, but most pages in any single report will follow a standard layout.

Suppose you are a frugal person, and you use only *TEXT* to produce all your documents. You can do some "word processing" functions directly by *TEXT*, and others you'll have to fake. You'll probably also be interested in speed (using a minimum of keystrokes) and memory conservation (fewest *CTRL* codes for the printer, fewest spaces, using tabs instead of spaces). No matter what kind of document it is, you are going to have to deal with the fact that you won't be able to see it all on the LCD screen at once (without scrolling).

Let's begin by considering the simple problems first: memos, letters, labels, and forms. Further, we'll start with the plain vanilla solutions—no *BASIC* this time!

LETTERS AND MEMOS

The main formatting needs here tend to be margins, indentation, items backspaced from the right margin in letters (date, sender's address, closing, and enclosures), centered items, and entries in tabular columns. You could use the M100 just like a typewriter to handle these if it weren't for the word wrap feature and the dinky screen.

The easiest problem to deal with is the effect of an eight-line screen on a mind cluttered with facts, illustrations, and points to make. To begin with, you know that every letter is going to have three basic paragraphs. In the first paragraph, you are going to indicate very briefly what's on your mind and the result you want to obtain. (Obviously, we are talking about a business letter here!) In the second paragraph, you provide ideas and facts to support or justify what you have proposed in the first paragraph. The "second paragraph" may in fact be more than one paragraph—one per idea. In the third (or last) paragraph, you will ask for the result—support, a sale, an interview, authorization to act, whatever.

Knowing this, you can begin by typing a single-line description of each paragraph's contents. For a typical letter, you probably have no more than five or six of these one-liners, all of which will be visible on the screen. Use all caps to clearly identify these as a topical outline. Here is an example:

Step	Function-key Method	*CTRL*-key Method
Move to top of file	*CTRL-UP ARROW*	*CTRL-W*
Select text for removal	*F7*	*CTRL-L*
	DOWN ARROW, LEFT ARROW	*CTRL-X, CTRL-S*
Delete text, leave *CR*	*F6*	*CTRL-U*
Move to next item	*F1 Find: imp*	*CTRL-B, CTRL-E*
Select text for removal	*F7*	*CTRL-L*
	DOWN ARROW twice, *LEFT ARROW*	*CTRL-X, CTRL-X, CTRL-S*
Delete text, leave *CR*	*F6*	*CTRL-U*
(and so on)	(16 keystrokes to here, but not touch-typeable)	(24 total keystrokes, but hands stay on home keys)

A comparison of function keys versus CTRL *keys for editing the letter shown in Figure 1. The keystrokes show how to remove the topical outline.*

```
REMINDER OF UPCOMING UNITED
        WAY DRIVE
IMPORTANCE OF:
   PRIVATE SECTOR REPLACES
        GOVT SUPPORT
   GROUPS SUPPORTED
ASK FOR RESPONSIBLE
   CONSIDERATION
```

Now you can type a paragraph for each of these points, stating your ideas, examples, and facts in your unique way. This works whether you are writing a memo or a letter. You should type your text without any carriage returns except between paragraphs. See Figure 1 for an example of a draft of this letter.

When the letter says what needs to be said, use the function keys or the *CTRL* keys to find, select, and cut out the topical outline items in caps. See Figure 2 for a list of the function keys and *CTRL* keys you

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could use to eliminate the topical outline.

Now you are ready to put in the heading (your address and the date, or the "To:/From:" memo heading), the inside address (for letters only—the name and address of the person to whom the letter is written), the salutation and the close, and any other items, such as notation of enclosures. You still do not need to be concerned about margins.

The easiest way to get a heading on your letter is to use templates. Set up standard headings for letters and memos in *NOTE.DO*, following the instructions for creating a form on pages 10 and 11 of April '89 *Portable 100*. This also describes how to center a heading; the directions are too long to repeat here. If your printer can use *ESC*ape codes to control paper and printhead movement, or for changing fonts, you should use them here.

With letterhead, standard heading, and memo templates in your *NOTE.DO* file, and starting from the *TEXT* file containing your letter text, you need only:

- Exit *TEXT* (push *F8* once or *ESC* twice),
- Enter *NOTE* from the menu,
- Copy the appropriate template into the paste buffer (position at the start of the form, press *F7* or *CTRL-L*, move cursor to end of form with arrow keys or *CTRL* combinations, and press *F5* or *CTRL-O*),
- Exit *NOTE* (push *F8* once or *ESC* twice),
- Enter your letter file from the menu,
- Position the cursor and press the *PASTE* button (no alternate for this).

Your next step is to put on the inside address, if this is a regular letter instead of a memo. Type the inside address line by line, pushing the *ENTER* key at the end of each line. You should start each line at the left-hand side of the LCD screen. A memo may require an "In Re:" line separate from the "To:/From:" heading; if so, it is handled in the same way. If the "In Re:" line requires underscoring, WAIT! Don't put the ^*P* sequences in until you have set the margins up. This precludes getting an underscore line through the white space in the left margin; for most printers, you must turn the underlining OFF at the right margin, and turn it back ON again just before the character that appears at the left margin.

Earlier, I mentioned that you should have a standard layout for each kind of document. If your printer supports control codes, you are nearly done. At the end of your heading, insert the printer control codes that set up your margins and page length and turn on any other features you want, including underscoring. I include these set-up strings in my templates and just paste them in at the same time. You can also produce a template for your closing and the enclosure line and paste it at the bottom of the letter. Then use *F3* or *CTRL-G* to get the *Save to:* prompt, which you answer by typing *LPT:* (THE COLON IS IMPORTANT!). Line your paper up in the printer, press *ENTER*, and watch your letter roll off the press.

If your printer control codes don't include ones for setting up margins, you have to do some space-bar and *ENTER*-key banging now.

You can set your top margin by going to the very top of the file, above the heading, and pressing *ENTER* six times for every inch of top margin you want. (Of course, if you already have a top margin in your template, don't bother with this!) Or you can just turn the platen knob on the printer to set the point at which printing will begin.

Setting the side margins is made more difficult by the 40-column screen and by the word wrap. Begin by positioning the first line of the inside address at the top of the screen. Then insert a ruler on the top line, using symbols and numbers and running from the left side of the screen to the right, like this:

```
—+—1—+—2—+—3—+—4—+—
```

(Press *ENTER* at the end.)

Put the cursor on the first character of the inside address and press the space bar repeatedly until the character is in the column you want as the left margin. (I recommend 11 as a standard). Use *TAB*'s only if your printer turns the M100's tab character into an 8-space jump. Repeat this for the remaining lines of the inside address. Press *ENTER* and type in the salutation; then use the space bar to move it to the left margin.

Use *Cut* and *Paste* to move the ruler line to just below the salutation; then move the ruler line to the top of the LCD by pressing the down arrow key or *CTRL-X* repeatedly. Insert the required number of spaces at the beginning of the first line of the body of your letter to set the left margin. Use the ruler to count over the number of characters you want to have in each line—a left margin of 11 spaces and a line length of 65 characters works out pretty nicely (assuming you are going to print at 10 characters per inch).

Because of word wrap, you have to count the characters physically to know where to insert a carriage return (or a hyphen and a carriage return) to end each line. That's why the ruler comes in handy. Move the cursor to the space just after the sixty-fifth character (which may also be a space), and press *ENTER*. If you want to have a right-justified letter (all the lines end in the same column, producing a straight right margin), you can go back and insert spaces between the words as required to produce the effect.

TABLES

If you have any tabular data in your letter, you can use the ruler to set items in neat columns. I find it easiest to work out the spacing on a piece of paper before trying to enter the data and column heads. The best way to align columns is to insert spaces and count carefully. If you use tabs, remember that you have to use spaces to get decimal points to line up. It is also best to lay out your columns so that the fortieth character position is empty (counting the left edge of the paper as the first character position) on each row of the table. This leaves the last space of

every other line on the LCD unoccupied and keeps the word wrap from getting you utterly confused.

Remember that only the beginnings of the lines will be even on the LCD; the right-hand ends will look pretty ragged on the screen, even if you right-justify. You'll know whether you did it right when you print your letter. It takes practice and patience at first. The good part is that the effort involved tends to promote concise letters and plain, simple language!

Repeat this process, cutting and pasting the ruler line as required, until the letter body is formatted. Insert two carriage returns below the body of the letter and space over to the location where your closing needs to begin. Type the closing (*Sincerely*, for example). Press *ENTER* four times and space over to a location directly below the first character of the closing; type your name. Press *ENTER* again if you have any enclosures and line up the abbreviation *Encl* with the left margin. If your printer can accept a top-of-form character (usually ASCII 12, entered as ^R), put one in on a blank line by itself.

FORMS AND LABELS

The techniques described for letters and memos also work for forms and labels. Because you can standardize these items, you can make full use of your printer features and *SCHEDL/ADDRS* to automate their production.

In developing forms, you can put printer codes directly into your *NOTE.DO* templates. You can also develop "set-up files," *.DO* files containing only printer codes to set margins and form lengths. Before you start printing, *Save* (*F3*) the *.DO* file you need to *LPT:* and the printer ROM will do the work needed to advance the paper between forms. Another "set-up file" can return the printer to your normal parameters. In addition, if you learn to write simple programs in *BASIC*, you can easily produce forms on demand without bothering with any set-up files at all.

Labels are also pretty easy. The standard mailing label is 5 lines by 3.5 inches. This means you can get 35 characters per line in 10 pitch, 42 characters in 12 pitch, and 58 characters in condensed mode. The larger "shipping label" is the same width, but 12 lines high. I like to pre-print these with my return address in condensed print on the first two lines, followed by a bar made up of percent signs (%) or hyphens (-). Then when I need to mail something, I can type the address of the recipient in a "scratch" file, line up a label in the printer, and do a *SHIFT-PRINT* operation. If I'm sending out a mailing, I can type all the addresses into the scratch file, insert the right number of blank lines to get 12 lines between the first lines of adjacent labels, roll a strip of my preprinted labels into the printer, and press *SHIFT-PRINT*. Ross Brochhagen also describes a way to create labels in some detail in his Feb. '89 article.

FEATURES TO COME

That's it for this time. In the next two segments on *TEXT*, we'll look into:

- Plain-vanilla solutions for reports, articles, diagrams, and graphs
- What Strunk and White never told you about the art of good business writing
- *BASIC* print formatter programs for the times when flexibility is more important than saving RAM.

Valeas, qui legis quod scripsi!

Bill recently left the world of independent consulting. He is now the manager, Employee Development for Atmos Energy Corporation, a natural gas utility holding company in Dallas. You can still reach him on CompuServe [71316,516], through Portable 100, *or at the address shown in last month's program listings.*

by Bill Brandon

XMADAY.200

XMADAY.200 is the cross-bank version of Wilson Van Alst's *MAYDAY.200* (page 7, this issue). It's advantage is that it needn't be moved into the recently cold-started bank, thereby preserving RAM in that bank for data recovery. It also incorporates Van's *BRRSET.200* for resetting the *DAY*, *DATE*, and *TIME*. The *BASIC* loader program below creates *XMADAY.CO*. Put it into any two banks so that you always have a working copy.

The program begins by requesting *DAY*, *DATE*, and *TIME* input. A carriage return politely bypasses the current prompt while an improper input returns to the T200 menu.

The final prompt, *Destination Bank*, requires the user to enter the bank to be recovered. A response other than 2 or 3 will be interpreted as 1. The program returns to the bank from which it was run. And when you reenter the recovered bank, you'll find the file *FOUND.DO* on the menu. It will be 18,500 bytes in size.

Refer to Van Alst's article for full recovery notes.

by Paul Globman and Wilson Van Alst

```
1 '************************
2 '*  XMADAY.CO           *
3 '*    by Paul Globman   *
4 '*  Copyright (c) 1989  *
5 '************************
10 FOR I = 63574 TO 63786
20 READ X:POKE I,X:SM=SM+X
30 NEXT
40 IF SM = 26972 THEN 60
50 PRINT"error in data":STOP
60 SAVEM"XMADAY.CO",63574,63786,63617
1000 DATA 62,0,211,216,33,27,111,205
1010 DATA 115,45,1,68,72,205,168,130
1020 DATA 218,125,248,229,9,235,225,126
1030 DATA 254,26,204,84,65,254,127,204
1040 DATA 84,65,35,223,218,109,248,175
1050 DATA 195,153,3,33,164,103,34,52
1060 DATA 239,33,1,249,205,165,248,196
1070 DATA 103,27,33,11,249,205,165,248
1080 DATA 196,35,27,33,26,249,205,165
1090 DATA 248,196,19,27,195,189,248,205
1100 DATA 158,103,62,7,50,7,239,205
1110 DATA 246,84,215,200,17,43,249,205
1120 DATA 183,121,33,41,249,182,201,49
1130 DATA 255,255,33,3,105,205,204,17
1140 DATA 205,247,18,231,214,48,71,62
1150 DATA 1,135,5,194,207,248,230,12
1160 DATA 50,238,248,50,87,248,33,86
1170 DATA 248,17,86,248,1,103,0,243
1180 DATA 205,236,248,195,86,248,197,6
1190 DATA 0,213,86,227,205,176,155,209
1200 DATA 235,193,35,19,11,121,176,194
1210 DATA 236,248,201,68,97,121,58,32
1220 DATA 32,95,95,95,0,68,97,116
1230 DATA 101,58,32,109,109,47,100,100
1240 DATA 47,121,121,0,84,105,109,101
1250 DATA 58,32,104,104,58,109,109,58
1260 DATA 115,115,0,221,34
1270 REM       END OF DATA
```

Listing 1 caption: XMADAY.200. *This* BASIC *loader program creates a program called* XMADAY.CO, *which recovers data from* .DO *files in another bank after a cold start.*

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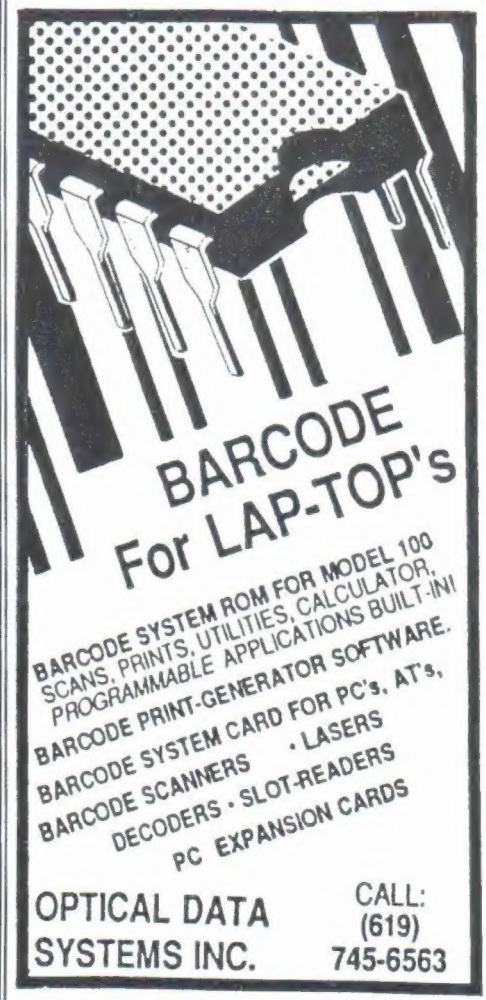

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80	EME Systems	19
30	Granite Street Portables	13
33	Granite Street Portables	6
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128	Software Versand	13
71	Tandy/Radio Shack	CII
180	Tony Anderson	24
143	Tony Anderson	19
145	Tony Anderson	25
137	Ultrasoft Innovations	28

** Please Contact this advertiser directly.

NEW PRODUCTS

RS#	Manufacturers	Page
62	Club 100: A Model 100 User Group	20
60	Cryptek	21
66	King Computer Services	21
61	Mel Zwillenberg/Minsof	20
64	Optical Data Systems	20
65	Systems Peripherals Consul.	21
63	Tony Anderson	21

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Lucid Spreadsheet: This is the one PICO magazine says "blows Multiplan right out of the socket" and Infoworld performance rated as "excellent" and said "makes the Model 100 compute." Gives you features you cannot get with Lotus 123. Lets you build spreadsheets in your Model 100 that would consume 140-150K on a desktop. Program generating capability with no programming knowledge required. Variable column widths. Includes find and sort with function key control. It's fast, recalculates like lightning. No feature has been taken from the original, only new ones added.

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LAST CHANCE FOR PICO BACK ISSUES!

Our announcement in the April garnered such a great response that we've extended the deadline! If you want any *PICO Magazine* back issues, many with articles and columns directed at the Tandy 100/102, 200, NEC-8201, Olivetti M10, and Kyocera KC-85 computers, order now. Once the demand for them drops down, any issues unsold by Oct. 1, 1989 will be **thrown away!** We've priced these magazines to **MOVE** at the incredible low rate of just $2, S/H included. The minimum order quantity is $10.00 (foreign shipping is $1.50 per magazine for Surface, $5.00 per magazine Air Mail).

If you want any of these, just photocopy this page, circle the ones you want, add them up, and mail your check with the photocopy to: Portable Computing Int'l Corp, PICO Back Issues, P.O. Box 428, Peterborough, NH 03458. For faster service call 603-924-9455 and have your Visa, Mastercard, or Amex cards handy. Order **TODAY**, they might be **GONE** tomorrow! ***Note: The italicized entries in each month below are Tandy 100/102 related articles.***

1985

January: DG has the One to Go, *Model 100 Proves Itself in the Jungles of Nicaragua*, Meet the Dulmont Magnum, *Telecommuter: Software that's Ingenious, Kyocera's Three Aces. End Telephone Tag with M100's.*

February: NEC Wishing upon Its Starlet, In-Depth Reviews of HP 110, Sharp PC-5000, *Chattanooga Systems AutoPen, AutoPad, Trip.*

March: Reviews of Epson Geneva and Osborne 3, Comparisons of Two Thermal Printers (Brother HR-5 and Printex TH-160); *The Pluses and Minuses of Batteries, M100 Data Acquisition.*

April: Reviews of Sord IS-11, Sharp PC-1350, *DISK+, T-BASE*, and Roadrunner; *Free Software: Textpro*, Technology Transfer Damming the PICO Pipeline to Russia.

May: Review of DG1, Which Spreadsheet Should you Buy? Servicing Picos, LCD Screens in Color, Federal Express.

June: Reviews of *Tandy 200, 2.2 Companion*, and *T-Backup, M100 File Transfer*; Wrangler improves the Odds with Sharp PC-5000s, Dow Jones News/Retrieval On-line Database, *Courtroom M100's.*

August: Reviews of Datavue 25 and *Touchbase Modem*; QuickTrip Convenience Stores More Efficient, Tracing Tribal Roots and Translating the Bible in Jungles of Papua New Guinea.

September: Reviews of HP Portable Plus, *WriteROM, ThinWrite 80 Portable Printer*; A Flat Mac, *M100 Meets Challenges at Woods Hole Oceanographic Institute.*

October: Reviews of Kaypro 2000, *T-View 80*; Computerized Fire Department, Stretching the limits of Telephone and Computer, *BASIC translation Tactics.*

November: Reviews of Bondwell 2, NEC 8027A Printer, CQ Haste; *PICO Formatter*, Search and Rescue Via Computers, Industry Views from an HP Exec.

December: Close Look at Ericsson Portable and *TMPC (time management software)*, Travel Tips, Tricks for Traveling, *Dialer Program, Project management with the M100.*

1986

January: Reviews of Gridcase 2, Access, WordFinder, and Prospecting, CP/M and MS-DOS, *Security Program*, Can Universities Cope with Picos? News from Comdex, *Jazz up your LCD.*

February: Reviews of ZP-150, and LeScript Word Processing; *Stevie Wonder Inspires Stardom in M100*, Can Universities Meet Expectations of Computer-literate Students? *Cold-Start recovery, Personalized Form Letters.*

March: Reviews of Panasonic Exec.Partner, Lync 5.0, and *Hardwire*; University Rethinks its Tasks, Picos in Medicine, *Auxiliary Battery Packs Spell Independence, More Muscle for the M100.*

May: Reviews of Toshiba T1100, IBM PC Convertible, Casion FX-7000G Calculator, SG-10 Printer; *MIKEY, Appointment Manager*, and *FAST*, IRS Crowns Zenith';s Z-171, Handhelds in Restaurants.

June: Reviews of Zenith Z-171, *LapCoder, SuperROM, LAPDOS, and BlackJack*; Go Shopping at PC in Rochester, NY, OM10 RAM Map (pt 1), A Tale of Two City Councils.

July: Reviews of Bondwell, ROM2, Letterjet HS-80, and Sidestar,; Electronic Cottage, Taking Stock of Investment databases II, NEC 8201A's LCD, OM10 RAM Map (pt 2)..

August: NH's Governor discusses Laptops, PC-7000 from Sharp, Choosing your test-oriented Database manager, *Model 100/200's Lend a hand to Job Seekers*, NEC-8201A's Communication Connection.

October: Reviews of Toshiba 1100+, New Word, *Diconix Printers*, Fortune 500 Picos, Interview with DG Exec's, Desktop publishing with Picos.

November: Picos in Libraries, *Clever M100 Combinations, Exploring TPDD Part I*, Reviews of Datacomputer 2.0, *TPDD, TS-DOS.*

December: Pcios on Wall Street, Connecting to On-line Databases, Telephone Problems, *TPDD Part II*, Reviews of *Cleuseau, French/German Tutor 3, Pocketsize Modems*; 1986 Article Index.

1987

January: Book Publishing With a Pico, *Framework in a Pico*, Review of Right-Writer, JK Lasser's Money Manager, HP+Enhanced, Electric Webster, *Disk Power*, Pico's Computer Buyer Guide.

February: *Poor Man's Idea Processor*, Macintosh-Pico Connection, *M100 Cursor key alteration*, Handhelds: HP-18C, Langenscheidt 8000, TI-74, Reviews of Sord IS11-C, *Lets Play Monopoly, $100 letter quality printer.*

April: Browsing the Boards, Writers & Portables, KTI products, Badminton & NEC, Reviews of *Inside the M100, TTXPress Printer, PCSG Business Analyst*, Datapad 84 Zoomracks & ECFS.

May: Doctors with Portables, *Text to printer*, Hitting the Boards, Reviews of PC Convertible Add-ons, Holiday Best, Twist & Shout, *M100 memory Expansion.*

June: Lawyers & Laptops, *Personal Management System, M100./Mainframe Terminal Prog.*, Reviews of Wang Portable, *Search, Sprint and Supercalculator, Best of Compuserve book*, Chess-to-go.

July: Programming in the Portable Environment, Sysop intervierw, Talking portables (pt1), Portable Computer Buyer Guide, Reviews of *TS-Random*, Software Carosel, Popcorn & the Hyperion.

August: NEC 8201 tokens, Laptops in Movie filming, Talking Portables (pt2), Reviews of Casio FX-8000G, Tandy 1400 LT, and *System 100.*

September: *English Teachers use Laptops, Picos in Class, Document templates, Picos in the Oil Patch*, Reviews of HP ColorPro, and the *Sportster 1200 modem.*

November: *Control That Printer, Academia & Laptops*, Laptops on Capital Hill, Starlet Secrets, Reviews of Psion II, *DVORAK keyboard*, & Spark.

December: Global Laptopping, Starlet Software, Toronto Blue Jays & GRiD, *NiCd Notes*, Review of IMC LCD-286, 1987 Article Index.

1988

January: Portable Computer Cellular Communication, Laptop Roundtable, Pico Portable Guide. Reviews Telemagic, Direc-Tree Plus, SchwabLine, Quotrek.

February: TenniStat, Flexibility of Form, T200 and T16. Reviews Eclipse, T1100 Hard Drive.

May: Handhelds Fight Crime, A Pico in China, Compaq Port. III, Datavue Snap, Fax hits the Road, HP Portable Vectra, T1400LT, Three Pocket Modems, Close-Up's Customer & Support.

June: Multispeed in the Tropics, *Monitoring Alkaline Batteries*, PSION and Mass Storage, Datavue Spark, Smith Corona Portable Word Processor.

July: Toshiba on the Road, *Diskette Ratings, Metered NiCd Manager*, Procomm on the NEC, WordPerfect 4.2 on the T1000, Sales Ally.

September: Laptops & the Learning Disabled, WordPerfect 5.0, Dynamac EL, HP-71B, WordPerfect Executive, Webster's New World Writer II.

October: Portables at Sea, Macintosh Navigating, Piloting and Celestial Progs, NEC-8300, Compaq Port. 386, File Transfer, Golden Parachute.

November: European EMAIL, New Tricks for your Casette Recorder, Pico Pillows, Amstrad PPC-640, Selecting the President, Sales Power, Sales Strategy, Office Writer goes Light.

December: FASTECH, Automating Your Sales Force, AI, ScriptWriter, LiteDrive, Homeword Plus, VP-Expert.